TECHNOLOGY DEPT.

First Copy

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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Library

99% of All Passenger Cars Built in U. S. in First Five Months Sold to Consumers

Industry Holds Production to Level of Demand at Time of Year When There Is Likely To Be Overproduction

NEW YORK, July 8.—Ninety-nine per cent. of all the passenger automobiles built by United States manufacturers in the first five months of this year went into the hands of consumers, according to a compilation of production and sales by Automotive Daily News.

This fact clearly disposes of any question of overproduction during the only period of the period in which there is likely to be an overextension of operations by the car builders.

While in the first five months of 1930 consumption of passenger cars exceeded the output by 1 per cent., the record made in that period was

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PLANT OPERATION IN N. Y.-PA. SECTOR SHOWING GAINS

Jamestown, N. Y., July 8.—The beginning of the last half of 1931 finds general industrial activity in southwestern New York and northwestern Pennsylvania on a substantially firmer basis than was the case a year ago. Most large concerns, especially those engaged in production of material for the automobile industry, are operating on schedules materially greater than last summer and approximately 20 per cent. better than during the first quarter of the current year. The outlook for normal business is considered good by most factors in the trade.

The wood furniture industry has staged a remarkable comeback thus far this year, with most of the larger plants in operation on schedules of at least five days a week. Some of the smaller units are working three and four days a week, with full complements of employees.

At the plant of the Crescent Tool Company, Foote Avenue and Harrison Street, Jamestown, working sheets were stepped up to normal of five days a week early this year. This schedule has been steadily maintaind in practically all divisions and indications are that normal production will rule during

(Continued on Page 12)

G. M. Retail Sales in June 103,303, As Against 97,318 in June, 1930

Corporation to Announce Monthly Sales in Advance of Steel Reports as Guide to Trade Conditions

NEW YORK, July 8.—Retail sales of new automobiles to consumers in the United States by General Motors dealers in June totaled 103,303, as against 97,318 in June last year. Sales of General Motors cars by the corporation to its dealers in the United States during the same period totaled 100,270, as against 87,595 in June last year.

June sales of General Motors cars to dealers in the United States and Canada together with shipments overseas totaled 111,668 as against 97,440 last year.

This is the first month in 1931 to show an increase over the corresponding month of 1930. It is also interesting to note that retail sales by dealers to consumers in June fell 2,033 units short of the actual sales by the corporation to its dealers.

Following its announced policy the monthly sales of the General Motors Corporation will in the future be announced on the eighth day of the month in order to provide a business guide for this and other industries. This report will thus be made three days in advance of the reports on steel operations.

(Continued on Page 2)

FAIL TO AGREE ON INTERSTATE LICENSE FOR BUSES, TRUCKS

Indianapolis, Ind., July 8.—Representatives of te nstates meeting with bus operators, members of trucking associations, tire company and officials of the Federal highway bureau at Washington at French Lick, failed to reach an agreement on interstate license regulations as they apply to motor freight and bus transportation.

The session was called by Frank Mayr, Jr., Indiana secretary of state, and was attended by officials from Missouri, Iowa, Illinois Michigan, Ohio, Georgia, Kentucky, West Virginia and Indiana. Wisconsin and

(Continued on Page 2)

TOWNSEND HEADS SAN DIEGO GROUP

San Diego, Cal., July 8.—J. R. Townsend, vice-president, has succeeded Harry C. Jones as president of the Automotive Association of San Diego, following the latter's resignation as a result of serious illness.

N. A. C. C. Junking Plan Rid Trade Of 360,000 Units During 1930

Hudson Joins in Program for Next Year; Move Expected to Clear Markets for Good Year in 1932

DETROIT, July 8.—Announcement was made here today that the new company which has given its adherence to the official junking plan of the National Automobile Chamber of Commerce was the Hudson Motor Car Company. This leaves only three member companies still outside the junking plan.

It was also announced that during 1930 a total of 360,000 cars were junked under the N. A. C. C. plan and that a substantially greater number will be so disposed of during 1931.

Attention is called to the fact that in addition to cars junked under the definite plan, 2,600,000 motor vehicles which were running in 1929 were not re-registered in 1930. The great majority of these were junked by owners or dealers unofficially. This means that nearly 3,000,000 motor vehicles were eliminated from the highways in 1930. There will be considerably more than 3,000 000 removed from operation this year.

This total for the two years, of approximately 6,000,000 motor veh-

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AUTOMOTIVE BUYING BOLSTERS MACHINERY TRADE; OTHERS QUIET

New York, July 8.—"Again automotive sales are the strong points in the machinery and machine tool field," says American Machinist. "Chevrolet has purchased a substantial number of gear-cutting machines and some other equipment; Chrysler has purchased some tools, and other districts report a quicken-

(Continued on Page 12)

NASH BOSTON SALES UP 22% THIS YEAR

Boston, Mass., July 8.—H. C. Hart, president of Nash New England Company announces that the retail division has sold 22 per cent. more cars so far this year than were sold during the first six months of 1930. For the same period the used car department has sold 51 per cent. more than it did in the first half of last year. "The outlook for the next six months," he says, "leads us to believe that we shall show a substantial gain over the last half of 1930."

Late News Flashes

New York, July 8.—In its current issue Iron Age estimates steel output at 33 per cent. of capacity, as against 35 per cent. a week ago. The magazine says that the belief is gaining that July will mark the low point in steel production, with August showing a slight gain.

* * *

New York, July 8.—The American Petroleum Institute estimates average crude oil output increased 40,500 barrels daily during the week of July 4 to 2,482,500 barrels. During the same period gasoline in storage dropped 2,170,000 barrels to a total of 39,698,000 barrels.

* * *

South Bend, July 8.—Sales of Studebaker Corporation in second quarter of 1931 totaled 18,037 cars, against 16,472 in like 1930 quarter, increase of 1,565 cars, or 9.5 per cent. These figures do not include Pierce-Arrow. Second quarter increase more than offset decrease in unit sales in first quarter and enabled Studebaker to finish first half with sales in excess of corresponding 1930 period.

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Capital Dealers Favor Title Law; Differ on Act

WASHINGTON, July 8.—**There has been considerable misunderstanding as to the attitude of automobile dealers in this city with regard to the proposed title law in the District of Columbia. Automotive Daily News has asked R. J. Murphy, manager of the Washington Automotive Trade Association, to clarify the matter and he has given us the following statement:—**

"When the Congress of the United States, which makes the laws for the voteless District of Columbia, which in other cities are made by the city fathers, passed the act authorizing a title law they departed from their usual procedure in connection with the District of Columbia affairs and instead of outlining its procedure they granted power to the commissioners of the District of Columbia to promulgate regulations covering the issuing of title and the registration of motor vehicles and trailers.

"Our organization at its regular monthly meeting passed a resolution to the effect that the commissioners be notified that this Association and its manager were at their call to render any service possible toward drawing title law regulations that would be up to date in every respect.

"W. A. Van Duzer, who was appointed director of motor vehicles and traffic as of July 1, 1931, early in May was engaged as a consultant and he immediately called a meeting of the following: M. O. Eldridge, assistant director of traffic; C. C. Collins, attorney of the Legal Department of the American Automobile Association; Donald P.

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Regulates Used Car Stock With Control System

See Page 3

G. M. Retail Sales in June To Same Month Last Year

(Continued from Page 1)

which have been considered the barometer of current trade conditions for a number of years.

Below is a tabulation of General Motors monthly sales for 1928, 1929, 1930 and 1931 to date. The figures are segregated to show: (1) Sales of General Motors cars to consumers in the United States; (2) sales of General Motors cars to dealers in the United States, and (3) total sales of General Motors cars to dealers in the United States and Ganada plus overseas shipments.

SALES TO CONSUMERS IN UNITED STATES

	1931	1930	1929	1928
January	61,566	74,167	73,989	80,582
February	68,976	88,742	110,148	107,014
March	101,339	123,781	166,942	155,973
April	135,663	142,004	173,201	170,544
May	122,717	131,817	169,034	186,892
June	103,303	97,318	154,437	174,085
July	.....	80,147	147,079	142,515
August	.....	86,426	151,722	151,105
September	.....	75,805	124,723	118,113
October	.....	57,757	114,408	109,789
November	.....	41,757	68,893	70,414
December	.....	57,989	44,216	25,435
Totals	.....	1,057,710	1,498,792	1,492,461

SALES TO DEALERS IN UNITED STATES

	1931	1930	1929	1928
January	76,681	94,458	95,441	96,845
February	80,373	110,904	141,222	141,642
March	98,943	118,081	176,510	168,107
April	132,629	132,365	176,634	161,720
May	136,778	136,169	175,873	170,388
June	100,270	87,595	163,704	154,912
July	.....	70,716	157,111	135,412
August	.....	76,140	147,351	149,781
September	.....	69,901	127,220	136,870
October	.....	22,924	98,559	91,428
November	.....	48,155	39,745	27,672
December	.....	68,252	36,482	27,779
Totals	.....	1,035,660	1,535,852	1,462,556

TOTAL SALES TO DEALERS IN UNITED STATES AND CANADA PLUS OVERSEAS SHIPMENTS

	1931	1930	1929	1928
January	89,349	106,509	127,580	125,181
February	96,003	126,196	175,148	169,232
March	119,195	135,930	220,391	197,821
April	154,252	150,661	227,718	197,597
May	153,730	147,483	220,277	207,325
June	111,668	97,440	200,754	186,160
July	.....	79,976	189,428	169,473
August	.....	85,610	168,185	186,653
September	.....	78,792	146,483	167,460
October	.....	28,253	122,104	120,876
November	.....	57,257	60,977	47,587
December	.....	80,008	40,222	35,441
Totals	.....	1,174,115	1,899,267	1,810,806

Unit sales of Chevrolet, Pontiac, Oldsmobile, Oakland, Buick, LaSalle and Cadillac passenger and commercial cars are included in above figures.

N. A. C. C. Members Junked 360,000 Cars During 1930

(Continued from Page 1)

icles, will have the effect of clearing the market for 1932. This is particularly true in view of the low production rate that has existed during 1930 and 1931. Every indication points to a good automotive year in 1932, even with the handicap of a presidential election.

While the Ford Motor Company does not come in under the N. A. C. C. junking plan, it has one of its own, by means of which a large number of antique models are gotten off the roads.

This systematic elimination of old and generally mechanically defective motor vehicles is contributing largely to safety, as well as acting as a stimulant for the new car market.

It is interesting to remember that the idea of a systematic junking plan began with the Chevrolet Motor Company. R. H. Grant, vice-president of Chevrolet in charge of sales at that time, put the plan into effect in offering his dealers a set sum for every car junked officially. A year ago a committee of the N. A. C. C., under the chairmanship of Alfred P. Sloan, brought in a plan for members of the chamber, which is now in effect in all companies except three.

The N. A. C. C. now has the cooperation of the Iron and Steel Scrap Institute in connection with the operation of junk yards. The institute is operating a very successful yard in Cleveland, an article on which appeared in Automotive Daily News some time ago.

The N. A. C. C., has agreed to make the institute junk yards official, wherever they are established. Owing to the condition of the scrap market, where prices have fallen to the lowest point in years, the institute has not proceeded with the establishment of yards as rapidly as had been intended. However, when business returns more nearly to normal levels, the institute will develop its chain of junking yards, which will be named as official operators by the National Automobile Chamber of Commerce.

FAIL TO AGREE ON INTERSTATE LICENSE FOR BUSES, TRUCKS

(Continued from Page 1)

Tennessee, invited to participate, were not represented.

Mr. Mayr had hoped to work out a plan in which trucks from the various states would be allowed to pass through any other state without being subjected to penalties for failing to display license plates other than those issued by their home state, but many of the state representatives explained that through the acts of their legislatures high license fees had been imposed on their motor trucks and that it would be manifestly unfair to permit Indiana trucks, for instance, where a much lower fee is collected, to operate without penalty.

PASSENGER CAR OUTPUT 1% OVER CONSUMER DEMAND

(Continued from Page 1)

no more favorable to the industry than that of the corresponding period of this year. Dealers and manufacturers entered the year 1930 with excessive stocks of cars and there was an urgent necessity for holding production below actual sales. The industry did just that, with the result that domestic and export sales in the first five months of 1930 amounted to 101 per cent. of the output.

This year, however, it was necessary only to keep production directly in line with the public demand for vehicles. In view of the fact that 99 per cent. of the cars produced were disposed of, it is clear that the industry accomplished its aim.

Production of passenger cars in the five months' period of this year amounted to 1,102,637. Domestic sales of new cars amounted to 1,009,349, while exports accounted for 79,483 units, making total sales of 1,088,832, just 1 per cent. short of the total output. Both the production and export figures include foreign assembly of cars by manufacturers of the United States.

The greatest excess of sales over production came in January, when the consumption amounted to 106 per cent. of the output. As natural, in preparation for the spring selling season, the biggest excess of output over sales came in February, when consumption accounted for only 86 per cent. of the production. In March, however, sales jumped to 99 per cent. of the car building and in April sales exceeded production by 2 per cent. In May, with exports estimated, it appears that consumption was 101 per cent. of the output.

Domestic sales are determined by taking the actual new car registration statistics, as published by Automotive Daily News, and adding 3½ per cent., the most commonly used figure of correction between actual sales and registrations.

In the first five months of 1930 production of passenger cars in the United States amounted to 1,574,888. Domestic sales were 1,441,437, and exports added another 140,222 units, making a total consumption of 1,581,759.

In May of last year production was 360,928. Domestic sales amounted to 357,146, and exports were 27,825, giving a total of 385,071, or 107 per cent. of the output.

The percentage of production absorbed in the domestic and export markets is shown in the following tables:

1931

	†Domestic Sales	‡Exports
January	131,223	14,160
February	138,827	14,756
March	207,870	19,581
April	275,032	16,986
May	256,397	*14,000
Totals	1,009,349	79,483

	‡Production	Combined Domestic and Export Sales	Per C't. Sales of Output
Jan.	137,805	145,383	106
Feb.	179,890	153,583	86
March	230,834	227,451	99
April	285,028	292,018	102
May	269,080	270,397	101
Totals	1,102,637	1,088,832	99

1930

	†Domestic Sales	‡Exports
January	186,397	22,753
February	219,052	25,036
March	309,280	30,792
April	369,562	33,816
May	357,146	27,825
Totals	1,441,437	140,222

	‡Production	Combined Domestic and Export Sales	Per C't. Sales of Output
Jan.	232,848	209,150	90
Feb.	279,165	244,088	87
March	329,501	340,072	103
April	372,446	403,378	108
May	360,928	385,071	107
Totals	1,574,888	1,581,759	101

*Estimated.

†Actual registrations, plus 3½ per cent.

‡Including foreign assemblies.

SPARKS from DETROIT

Plymouth Portraits

* * *

Whose Road Is It

* * *

Synthetic Gas Tax

* * *

Chris Sinsabaugh—Detroit Editor

IT might be called an old Spanish custom, as Douglas Fairbanks would say, this habit of mine of giving the column conductor's reaction after a ride in a new model. The analysis is valueless from an engineering viewpoint, but as reflecting the impressions of the average driver, who is not technically inclined, it may interest John Public and his family.

The ride this time was taken in one of the new Plymouths, just out of the oven this week, and worth while for two reasons—floating power and free wheeling. In the case of the latter feature, it was the first experience the present writer ever had back of the steering wheel with free wheeling. I've been too busy filling the column, perhaps. But this time I could not resist the temptation to become a pilot. What a surprise! Instead of it being a Chinese puzzle as I feared, free wheeling fitted me like an old glove. I took to it like a duck to water.

* * *

AFTER pushing in the handy button on the dash, which swung us into the new transmission, I forgot my worries. That little Plymouth fairly ate out of my hand. There was the delightful thrill of the long coast; the easy shift without declutching and no clash of gears. Running to a corner at speed, a slight pressure on the foot brake swung me around the turn easily, all set to again step on the accelerator and speed along the straightened-out road, the momentary slowdown having been hardly apparent. If that is all there is to free wheeling, then I am an enthusiastic convert.

* * *

AS for the floating power reaction. Unlike many who try out new cars, I did not attempt to see how fast it was—forty, fifty, fifty-five satisfied me. I wanted to note the performance at average touring speed. I must say I got a convincing answer. If I hadn't been told it was a four-cylinder I would not have known it from the way the car ran. It flowed over the concrete highway and even on the bumps of a country road its deportment rated 100. Chief Engineer Zeder evidently has hit the nail on the head with the Plymouth hammer.

In appearance the Plymouth gives the impression of being a larger car than it really is, with a low-hung body that aids in creating that belief and makes one realize the designer used to advantage every possible inch that would give roominess and comfort.

* * *

PASSED along to me because the Fisher Building is closer to Continental Motors than 350 Hudson St., New York, is the comment made by Dwight Davis, advertising manager of the big engine-building concern, on Alec Johnston's editorial, "Unintentional Larceny" in A. D. N. July 1. The editorial walloped the habit of city motorists pilfering fruit and picking flowers while in the country, forgetting the rights of the farmer. A. D. N. undoubtedly is right in calling it "unintentional larceny" and Davis strengthens the position of the editor by writing:

"Here's an interesting thought that was missed in the editorial. I'm under the impression that, legally, the property rights of a land owner along a public highway extend to the middle of the highway also."

* * *

ATTORNEY-GENERAL PAUL VOORHIES of Michigan has ruled that gasoline and all related substances suitable for use in automobiles are taxable, but that kerosene is exempt. The question was raised because some gasoline companies have synthetized a motor fuel by combining "low and point" kerosene with "absorption" gasoline. The attorney-general says that it therefore becomes a question of fact, whether the synthetic product is gasoline or kerosene. The gasoline tax law does not define either fluid, but Secretary of State Fitzgerald, who does the collecting, has ruled that "any fluid which can be used as fuel in an automobile designed for gasoline will be considered gasoline within the meaning of the tax law."

* * *

ALFRED REEVES, general manager of the National Automobile Chamber of Commerce, gave us food for thought the other day when he was in our fair city by calling attention to the fact that in 1930 registrations fell

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Sound Policy and Control System Regulates Used Cars

Hupmobile Distributor in San Antonio Promises Satisfaction, but Gives No Used Car Guarantee; Doesn't Favor Stunts

SELLING used cars without a guarantee, but with assurance that full satisfaction will be had, the San Antonio Motor Company of San Antonio, Texas, Hupmobile distributor, has developed a used car business that is both profitable and satisfactory.

"The old game of using tricks and stunts for selling used cars is becoming a thing of the past," Dale Dietrich, general manager of the firm, explained. "After all, when it gets right down to bare facts, what the customer is seeking is a good used car, and what the dealer is seeking is a sale. Give the customer assurance of a good buy, and the sale becomes a matter of course.

"Our new car salesmen also sell used cars, and they are carefully instructed not to misrepresent anything about any of our used cars in stock under any circumstances. If there are some good points about a car we bring them out. If there is something which may develop into trouble later on, the customer is fully aware of that before the sale is closed.

"We follow a plan similar to that of new car sales. After all, if a part in a new car fails, all the customer gets is the new part. Where much of the mechanical work is invisible, it is impossible to guarantee that everything is in first class condition. If we were to take down a chassis and go over every part the resultant mechanical labor and cost would be so great that we would lose money on the car.

"However, if a man drives out a used car today and an axle gives way tomorrow we replace the axle without charge. Anything which will give the customer complete satisfaction is cheerfully done. And we do not have customers running in with some little part complaining that we gave a guarantee for thirty days or something like that. We sell the car just as we know it to be. We tell the customer just how the car is. If some trouble arises that we did not know about, and which is not the fault of the buyer, we make an adjustment which is satisfactory to the man who made the purchase.

"We have a used car control system which is a little different than the average, and which is working out very satisfactory. This is for use among the salesmen and determines whether a man is really selling cars, or merely making a trade.

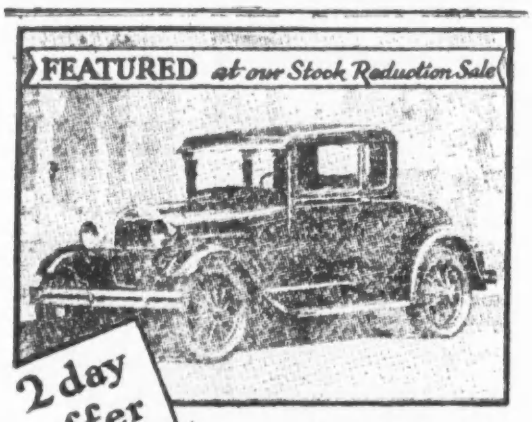
"On our sales control board, the last column shows the amount the salesman has sold in used cars over or under what he has taken in. For example, on our board at the present time, the first salesman is shown to have taken in $5,133 in used cars above what he has sold during the year to date. The second man is shown to go $115 over what he has sold. The third man has sold $276 more than he has taken in.

"This system keeps our used car stock moving and guards against salesmen devoting all their time to new car sales regardless of the condition they may create by taking in old cars in trade. The man who has taken in $5,133 more than he has sold will have to get busy or we will cut out all his new car sales except those which are for cash until he remedies this condition. The man who is only $115 above is shown to keep a good average. He can easily wipe out the $115 without any trouble, and this small balance indicates that he is giving his share of attention to the used car stock. The man who is $276 over what he has taken in is shown to be a good salesman, both in new and used cars. He is not only selling his share, but is doing some of the work of others.

"Where the amount is over that which has been sold, the figures are in red, but when the amount of the sales is greater than that of trade-ins, the figures are in white. Thus, the $5,133 and the $115 are in red, since they exceed the amounts that these men have sold in used cars. The man who has sold $276 more than he has taken in has the figures indicated in white.

"The figures on the board have a strong moral effect on the men, for if we are having a sales meeting and our used car manager reports that the stock of used cars is getting heavy, a glance at the board quickly shows those salesmen who have done their share, and those who have fallen down. A material improvement generally follows such an announcement."

Using a New Method



this especially desirable

1929 FORD

Coupe pictured above

Limited two-day offer! The serviceable 1929 Ford coupe pictured above is offered at a saving of $95. This late model Ford has been only slightly used. Its motor has been completely "Good Will" reconditioned. See it today at our Stock Reduction Sale. Inspect the wide selection of other special values. Easy terms on any used car.

Reduced $25 to only

$250

Choose from our complete stock including

1928 Oakland Coupe — Tires, motor, paint and upholstery like new.... $350

1929 Chevrolet Coach — Cannot tell this car from new $325

Easy G. M. A. C. Terms

EASY WEEKLY OR MONTHLY TERMS

BONNELL MASON CO.

USED CAR LOT

Lyons Avenue and Coit Street, Irvington

Salesroom: 360 CENTRAL AVENUE, NEWARK

OPEN EVENINGS UNTIL 10 O'CLOCK DURING SALE

AUTOMOBILE DEALERS are watching with keen interest the plan adopted by the Bonnell-Mason Company, Newark, N. J., distributor of Oakland and Pontiac cars, in using display advertising for its used cars. "The response of the public to our display used car advertising, in which a photograph is used of some special bargain we have to offer, is more than gratifying," said E. B. Mason, sales manager of the concern. "We are trying out the plan now in a small way, but if the results continue to prove successful, we will probably adopt this style of advertising for all of our used cars"

Individual Display

1929 Chevrolet Coach
Motor just overhauled, two new tires, color scheme dark green. A real value at $325
Oldsmobile Worcester, Inc.
258 Park Ave. Dial 4-3229

1930 Ford Coach
A late model in maroon, low mileage, excellent tires. Always carefully used. Cannot be equalled at $415
Oldsmobile Worcester, Inc.
258 Park Ave. Dial 4-3229

1929 Essex Sedan
Challenger model, refinished in black with cream wheels, four new tires. Runs fine. A bargain at $395
Oldsmobile Worcester, Inc.
258 Park Ave. Dial 4-3229

INDIVIDUAL DISPLAY CLASSIFIED ADS are used by Oldsmobile Worcester, Inc., of Worcester, Mass., to sell its used cars. While the above three ads appeared on the same day, on the same page of the newspaper, each was devoted to a different car, complete description, even to price. Note the similarity of borders

Ford Salesman Publishes His Own Magazine as Aid to Car Sales

ROBERT O'BRIEN, salesman for Meyer-Wortman, Inc., Ford dealer at Thirty-eighth and Perry, Denver, Col., recently conceived the idea of getting out a little magazine of his own as an aid in building more car sales. The plan has proven successful, and his sales have shown a worth-while increase as a result of his venture in the magazine field.

The "magazine" is 8½ inches wide by 11 inches deep. It is but a single sheet and is printed on only one side. The title of the magazine is the salesman's name, which is printed in large type at the top of the page. Then comes the date line and below that the statement that the magazine is published monthly by Bob O'Brien, with Meyer-Wortman, Inc., Denver. The purpose of the magazine is stated in the first issue of the paper, which said:

"This magazine is for you. Our primary object in publishing this little magazine is to keep you informed about Ford products. In no sense are we attempting to make you the object of a 'high-pressure' sales campaign—in fact, we do not even know whether you are a new car prospect or not. Nevertheless, we believe it is to our mutual advantage to send you this little sheet, enabling you to keep abreast of the latest developments in the automobile market.

"Bob O'Brien of our sales force is editing this paper, and it is Bob's hope that he will be able to print a sheet that will carry news and features of enough variety to really reward your reading. Your criticisms and suggestions will be welcomed by Mr. O'Brien in assisting him in the attainment of this end. Perhaps some of your friends would enjoy this paper. Please give us their name and address and we will be glad to see that they receive it regularly."

One feature that goes to make up each issue is the Denver retail prices of the different Ford models.

Then items about what the firm is doing and what the customers of the firm are doing go to make interesting reading matter for such a publication. There are many ways in which a live Ford dealer in any part of the country can make a similar magazine work for the firm or for an individual salesman. It is good publicity—direct-mail advertising with the personal punch.

What is more, it is publicity that does not cost a great deal. It is within the reach of the smallest automobile firms in the country and the expense can easily be taken care of by the salesmen themselves if they care to do so, as Mr. O'Brien has seen fit to do.

Another thing—it keeps the name of the salesman before the people that receive the magazine. This constant pounding away on a selected list of people is bound to bear fruit sooner or later and when they are in the market for a new car they are pretty apt to think of the salesman who has been sending the magazine to them each month.

A salesman can also follow up this advertising plan by making personal calls on the people receiving the magazine. He has a good opening wedge—just ask each one what they think of the magazine idea.

"YOUR dealers here are highly gratified with the beautiful appearance, brilliant performance and startlingly low prices of the new Willys cars."

—Halverson Motors, Inc.,
Minneapolis, Minn.

Write or wire for franchise particulars

Willys-Overland, Inc., Toledo, O. Willys-Overland, Ltd., Toronto, Can.

WILLYS

A BIG SIX priced like a four
A POWERFUL EIGHT . . .
A BRILLIANT KNIGHT . . .
2 NEW WILLYS TRUCKS

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

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New Industrial Problems

IN a brochure just published by A. W. Robertson, chairman of the board of Westinghouse Electric, there are some very pertinent remarks on the new problems that confront industry in this country. Mr. Robertson notes the shifting of responsibility from the individual to industry, a phenomenon on which we have commented many times.

"I fully recognize," says Mr. Robertson, "that the employees are one of the real assets of a going business—in many cases its most valuable asset—and their well being is of prime importance. People are too apt to think of big business as a piece of automatic machinery—soulless. In my opinion, the reverse is true. Big business must be human if it is going to succeed permanently, because what makes the wheels go round will always be human beings—employees who are investing part or all of their life work in the service of that institution.

"Business generally recognize that, regardless of the millions of money that have been put into plants and machinery, the ability to earn profits on that investment depends upon the loyalty and the efficiency of the employees.

"It has been said, in substance, that public good will towards a company and its products, while intangible working capital, has as distinct earning power as the plants, which would soon turn to lifeless material were it not for the livening influence of these intangible values which, in the final analysis, are the contributions of the employees of a company.

"The management of every concern always has before it the problem of dealing fairly with all parties involved—giving due consideration, of course, to the resources at its command. In periods of depression the task is made extremely difficult, because no one can predict with any accuracy the length of time the set-back may continue. Consequently the management of a company does not know how long the earnings may continue below normal, and how long it may be necessary to lend assistance to its employees out of work.

"In the years to come if the business of this country follows the upward curve of normal progress, as it has in past decades, and if business flourishes with only occasional periods of depression and unemployement, then the recent burdens added to industry will not become too heavy. On the other hand, if these periods of recession come too close together and increase in severity, then industry may not be able to carry on its usual normal responsibilities of payments to creditors, wages to employees, dividends to stockholders, plus the added burden of supporting the individuals who cannot provide for themselves in times of unemployment.

"It would be most constructive at this time if there could be developed a more tolerant attitude toward this problem on the part of both industry and the individuals involved. The whole world is afflicted by a new set of conditions. The right cure will be beneficial to every man, woman and child; therefore any proposal that may lead to progress in that direction should and will, I am sure, receive open-minded consideration.

"To me it seems highly desirable that we keep alive the old-fashioned individualistic spirit of looking after oneself. It is going to be our salvation. It is one of our greatest inheritances from the founders of this country. After all, no one is as much interested in me as I am in myself. If each and every one of us made it our principal business to look after himself as well as a reasonably prudent man should, there would not be so much required of either industry or the state."

Mr. Robertson calls to our attention, something that we should properly remember, that industry and the individual must co-operate in achieving the new safety for the worker. The worker has every right to demand protection, but he has no right to ask that industry be penalized to provide it.

MARYLAND'S RECAP SHOWS 17,348 CARS SOLD IN HALF YEAR

Baltimore, Md., July 8.—With Chevrolet sales in Maryland, in the recap for the first six months of this year topping 1929, and Auburn, Cadillac, Cord, Peerless and Pontiac showing substantial gains over 1930, the general trend of sales figures as a whole, appears indicative of a rather steady market.

From January to June 30, 1931, sales totaled 17,348 units, as against 22,863 cars for the same period of last year, a decrease of 31.7 per cent.

The complete sales tabulation, arranged alphabetically, for the first six months of the last three years, for purposes of comparison, follows:

	1931	1930	1929
Auburn	194	62	71
Buick	679	689	950
Cadillac	62	43	61
Chevrolet	6,567	6,680	6,215
Chrysler	379	498	595
Cord	8	4	..
De Soto	158	155	229
Dodge Brothers	304	396	619
Durant	74	157	266
Essex	392	672	1,621
Ford	4,955	8,916	8,000
Franklin	40	51	77
Graham	158	328	280
Hudson	169	255	432
Hupmobile	196	236	247
La Salle	44	73	118
Lincoln	21	22	26
Marmon*	25	58	134
Nash	311	347	709
Oakland	169	217	176
Oldsmobile	278	358	457
Packard	125	210	216
Peerless	57	27	79
Pierce-Arrow	41	57	54
Plymouth	299	309	581
Pontiac	868	761	1,063
Reo	52	71	95
Studebaker†	367	445	370
Stutz‡	2	4	28
Willys§	290	398	1,077
Willys-Knight	48	130	210
Miscellaneous	..	..	..
Totals	17,348	22,863	25,236

Note: *Including Roosevelt. †Including Erskine. ‡Including Blackhawk. §Including Whippet.

CONSOLIDATED SUPPLY OPENING 2 NEW STORES

Louisville, Ky., July 8.—Consolidated Auto Supply Company, Inc., with headquarters here, opened its fourth Louisville store and a new store in Jeffersonville, Ind. It opened its eleventh store in Bedford, Ind., recently.

The Consolidated Auto Supply Company handles tires, batteries, auto supplies, sporting goods, playground equipment and wheel toys. With the addition of the new stores, it operates thirteen all told, in Kentucky, Indiana and Tennessee. Others are in prospect.

Sales for the first four months of 1931 were 20 per cent. ahead of the corresponding period of 1930 in the same number of units. The general manager of the company is C. A. Hoover; sales manager, A. H. Bailey.

COMING EVENTS

JULY

19—**Nurburg-Ring, Rhineland, Germany.** Automobile Club of Germany, grand prize race

SEPTEMBER

1- 3—**Cleveland, O.** Hotel Statler, Society of Automotive Engineers, twentieth annual aeronautical meeting in conjunction with National Air races.
8-17—**Utrecht, Holland.** Utrecht Fair, bus and truck show.
16-17—**Atlantic City, N. J.** National Petroleum Association, annual meeting, Hotel Traymore.
20-26—**Springfield, Mass.** Eastern States Exposition.
21-25—**Boston, Mass.** American Welding Society, meeting.
28-29—**Atlantic City, N. J.** National Association of Motor Bus Operators, fifth annual meeting, Hotel Ambassador.
26-Oct. 2—**Atlantic City, N. J.** American Electric Railway Association, annual meeting.

OCTOBER

1-11—**Paris, France.** International Automobile Salon.
2- 3—**Houston, Tex.** American Institute of Mining and Metallurgical Engineers, petroleum division meeting
12-16—**Chicago, Ill.** National Safety Council.
14-16—**Pittsburgh, Pa.** Society of Industrial Engineers, convention.
15-24—**London, England.** International Motor Exhibition, Olympia Hall.
22-28—**Prague, Czecho-Slovakia.** International Automobile Exposition.

Contemporary Comment

AT fairly regular periods during the past ten years or so we have had to endure the ordeal of reading about the cleverness of some genius who has invented what the popular newspapers term a "Safety Petrol."

We are not for a moment blaming the genius who may or may not have provided a means for using a form of fuel safer than petrol; rather do we sympathize with him for being misrepresented when he is hailed as the inventor of something impossible.

If it is not inflammable it is not petrol, and if it is petrol it cannot be non-inflammable. If petrol were not extremely inflammable it would be useless for the purpose for which it is intended. It would be just as sensible to inform the world that somebody of more than normal intelligence and ability had invented a perfectly safe non-explosive gunpowder; the sort to which a match can be applied with safety while the reporter is sitting on the top of the barrel.

The details of this new and startling "Safety Petrol" that have been published are befogging, as is usually the case. It is, of course, well known that by distilling crude oil various products are obtainable which are difficult to burn and of no use as a motor fuel in an ordinary motor car engine, but they can be used in the Diesel type of engine, or in one specially modified to use heavier fuel.

It can only be surmised that something of this principle applies in the case of the fuel which has been heralded as a new discovery of "Safety Petrol." Any and every method of minimizing the risk of fire in motor vehicles or aircraft is to be welcomed, but there is no sense in newspapers bemusing the public with extravagant claims and confusing terms.

We find the last time that a non-inflammable petrol was discovered was in the latter part of 1926. Curiously enough, as in the present case, the petroleum derivative was referred to as "white spirit," and the inventor was chief engineer of the technical department of the French aviation service. Similar claims were made as a result of tests in aeroplanes, but after much sensational publicity nothing further was heard of it.—**The Motor (England).**

* * *

THE dealer who promoted an ambitious program of advertising and SELLING tire repair work is due for a pleasing surprise. That dealer has a gold mine, and he won't be sleeping on it. There are more people with $3 or $4 to spare than there are with $15 or $20, and there are plenty of good repairable tires in every community that are PROCURABLE for this profitable work for those who go after it.

If there is not enough NEW tire business in your community to go around to ALL who are after it, wouldn't it be worth while to ring up the old cash register 15 or 20 times a day with $2 to $5 repair jobs, on which the investment for MATERIALS amounts to only about one-seventh of the selling cost?—**Tires.**

* * *

THE Moscow rubber factory "Caoutchouc" has fulfilled its five-year plan in two and a half years. A statement given to the press by the factory shows its progress to have been as follows: Output in 1924-25, 3,450,000 rubles; in 1928-29, 13,800,000; in 1930, 24,700,000. In 1931 it is expected to reach 34,400,000 rubles, and in 1932 over 60,000,000 rubles. Ninety-five per cent. (2,300 workers) of all the workers and employees are enrolled in shock brigades.

The working day is seven hours and for those engaged in occupations injurious to health six hours. The departments have one of the best systems of ventilation, and safety and health regulations are strictly observed. One hour is given for lunch, which may be had in the factory dining room or at the department lunch counters.

The day of rest after each four days of work may be spent in the recently built clubhouse for 1,500 persons, in the gymnasium, in the theaters, library or schools. Every worker gets a three or four-week vacation each year.

The new workers hired are placed in newly-built houses, the construction of which is financed out of the funds for the improvement of the standard of living of the workers and those of the housing co-operative. In place of the old congested wooden shacks there have now been built in the vicinity of the factory thirty-eight five-story houses with comfortable apartments.

The children are brought up and educated in the factory day nursery which accommodates 150 children; in its kindergarten for 200 children, in the seven-year elementary school for 2,000, and in the trade school for 700 pupils.

The average monthly wage has increased four-fold as compared with 1916, amounting to 144 rubles as against 37 rubles.—**Economic Review of the Soviet Union.**

* * *

COMING at a time when reductions in costs are the order of the day, the petition by the railroads to the Interstate Commerce Commission for a 15 per cent. increase in freight rates at first glance will appear incongruous to many shippers. The cost of transportation is considered high in relation to costs for comparable services in other lines of activity. Moreover, freight rates still are inflated when compared with the prices of certain commodities. . . .

(Continued on Page 6)

Insuring Wholesalers' Profits With Trucks

This report on economical truck operation in the wholesale field was prepared by the General Motors Truck Company, Pontiac, Mich., and is appearing in serial form in Automotive Daily News. Copies of this report in pamphlet form are now available at all General Motors Truck Company dealer and distributorships.

DURING the survey which preceded this report, tremendous variations were found in the efficiency of truck operation in wholesale establishments. Even when wholesalers were operating under almost identical conditions, there were wide variations in the cost of truck operation, due to varying methods of truck management. For example, the accompanying table shows the cost record of two wholesalers of drugs, operating in a city on the Atlantic Coast. Both concerns handled approximately the same volume of business, their trading areas were almost identical, and other factors were closely parallel. Yet one wholesaler was delivering for decidedly less money, as the table shows.

THE RESULTS OF BETTER TRUCK MANAGEMENT

(Based on one year's operation)

	Wholesaler A	Wholesaler B
Trucks Operated	6	5
Net Sales	$864,000	$907,616
Truck Expense	18,144	15,611
Per Cent. Truck Costs	2.10%	1.72%

Wholesaler B, handling a greater volume of deliveries with one less truck, saved $2,533 in one year.

Analysis of the truck costs in many wholesale establishments showed numerous cases of this sort. Many wholesalers are losing large amounts annually because their truck operation is loosely managed.

Again, a number of wholesalers were found who were making exceptional profits on the entire wholesale operation because they had developed methods of using trucks which reduced the cost of incoming shipments, lowered warehouse and handling expenses, and otherwise provided a greater profit on many individual lines of goods handled. And increased profits from these sources mounted up in some cases to thousands of dollars annually.

Better Truck Management Means Greater Profits

The essential difference between those firms whose truck operation yielded a large profit and those whose trucks helped to create a loss on the entire wholesale operation is one of sound management. In many wholesale establishments truck operation has simply grown up as a part of the business without much thought being given to sound management. Trucks have simply been bought and placed in operation as they were needed.

Truck operation developed on that basis, however, is seldom profitable. The wholesaler who has a large investment in trucks and whose annual truck expense runs into thousands of dollars must realize that he is—in one sense—in the transportation business. And much of his success as a wholesaler will depend on how effective and thorough his management is from the standpoint of sound wholesale practice.

In general, there are four types of improved management which the average wholesaler needs to cultivate aggressively if he is to gain a maximum profit through better use of his truck transportation. They are as follows:

1. Better management of truck time.
2. Better planning of sales and deliveries.
3. More effective control of trucks and drivers.
4. Better planning of truck buying.

Profitable truck operation requires constant, vigilant management. The wholesaler who never has found the time to provide sound management for his trucks or who has felt that he lacked the necessary transportation knowledge to do so invariably will find that costly losses have crept in. These losses in most cases are permitted to continue, either because they are not recognized or because no one knows just what to do about them.

But the wholesaler who is interested in lowering costs and in increasing truck profits can do much to improve his own truck situation with relatively little expenditure of time and effort. And the first step toward improvement is to make a careful time study of every phase of his entire truck operation.

Time is the most important single factor in economical truck operation. Idle time is costly; productive time is profitable.

Why Idle Time Is Costly

The wholesaler who operates a fleet of trucks incurs a fixed expense which is present every minute, every hour and every day, whether or not the truck is working productively. As the accompanying chart shows, that expense is a substantial one.

When a truck works only seven and a half hours a day instead of eight and a half, as a result of idle time and delays, the total fixed expense remains the same. But the fixed costs per working hour increase 13.3 per cent. Or, if a truck works only twenty-two days out of a possible twenty-five, the fixed costs per working day increase 12 per cent.

To put these losses in terms of dollars and cents, a wholesaler who operates five trucks will lose $4.70 a day if each truck loses one hour of working time through delays and careless management. And in the course of one year that loss will amount to a staggering total of approximately $1,400. And yet, the investigation preceding this report showed clearly that a loss of an hour or more each day for each truck was common in many wholesale operations.

An idle truck is not profitable. Every hour or day lost means a real loss of money to the wholesaler. Only when every truck is working productively every minute of every working day can the wholesaler's truck costs be at a minimum.

Three sources of lost time were observed time and again during the survey.

1. Unnecessary loss of time at the loading platform.
2. Unavoidable lost time at the point of delivery.
3. Excessive time spent in the repair shop.

Wholesalers who eliminate idle time at these sources will find that their trucks can accomplish more work each day and can handle present work at lower cost.

(TO BE CONTINUED)

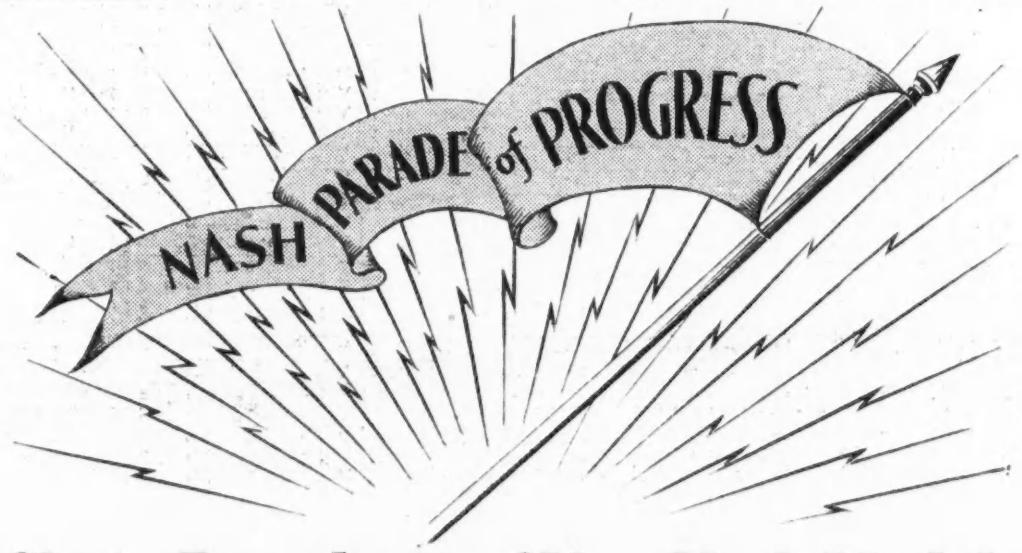
THE COST OF LOST TIME

These are the annual fixed costs on a typical two-ton wholesaler' truck:

Interest on investment	$ 57.00
Depreciation	477.00
Taxes	40.00
License	40.00
Insurance	125.00
Garage rent	180.00
Salary of driver	1,470.00
TOTAL FIXED COSTS	$2,389.00
Fixed costs per day (300 working days)	$ 7.96
Fixed costs per hour (8½ hours per day)	.94

APPROVES OPERATION OF SEVEN MORE BUSES

Trenton, N. J., July 8.—Operation of seven additional buses by the Pennsylvania General Transit Company over an extended route from its terminal in Toms River to the Toms River station, in the borough of South Toms River, and a change of route in Island Heights borough have been approved by the Public Utility Commission. The company showed that expansion was necessary to provide a convenient service between the Toms River station and Island Heights, and that operation of additional buses was necessary to accommodate, at times, 250 passengers discharged from trains at Toms River destined for Island Heights.



Chain Broadcast of New Nash Models Largest in History of Motor Car Advertising

The weekly Nash radio program, "The Parade of Progress," celebrating the introduction of new Nash models, June 28th, is broadcast on Tuesday evenings over the largest network of stations ever used by any motor car company. There is not a Nash dealer in America whose district will not be reached by the Nash program. The addition of the force of radio to the powerful Nash introductory program of newspaper and national advertising is a notable example of the added power Nash is putting behind the merchandising program of America's most saleable car.

LISTEN TO THE NASH PARADE OF PROGRESS *with Max Bendix, Official Bandmaster, 1933 Chicago World's Fair, and his Band, Coast-to-Coast, Tuesday Evenings, NBC Network, 9:00 Eastern Daylight Saving Time.*

(3369)

NEW SOUND-PROOFED BODY AND CHASSIS NASH

New Dealers Appointed

OREGON

Graham-Paige—T. M. Stott, Grants Pass.

Durant—Columbia Auto Company, Astoria; George F. Burr Motor Company, Coquille; E. M. Briedwell Company, McMinnville; Motor Inn Garage, Drain; Rifle Motor Company, Hood River; Salem Auto Company, Salem; Otto Erickson Company, Beaverton; Bontrager's Garage, Bend; Lane Auto Company, Eugene; Holloway Motor Company, Lebanon; Van Dyke Motor Company, Milwaukie; Grants Pass Motor Company, Grants Pass; Dulmage Motors, Portland; Lombard Durant Company, Portland (associate dealer under Dulmage Motors); Van-Durant Company, Vale (associate dealer under Tarr's Day and Night Garage, Boise, Idaho).

PENNSYLVANIA

Graham-Paige—Hayden's Garage, Susquehanna; Wind Gap Sales Company, Wind Gap.

Studebaker—Warren Motor Company, Meadville.

Willys-Overland—Capitol City Oil Company, Inc., Selingsgrove; Milton Johnson, Quakertown; Welsch's Auto Service, Mount Oliver, R. D. 6, Broughton; Mead & Goodrich, Williamsport; Homish Sales and Service, Aliquippa.

Auburn—O. A. Lippert, Manchester; Northeast Auburn Motors, Philadelphia; B. A. Drummond, Punxsutawney; Leo D. Yunker, McKees Rocks; Nick's Service Station, Cresco; Nace Motor Car Company, Harrisburg; H. B. Perkins, Meadville; Fowler & Fowler, Indiana; Yezequel Motor Company, Ebensburgh; Liberty Garage, Homestead; Pritchard's Garage, Phillipsburg; Ernest Meisel, St. Mary's; Mason Brothers, Ashland; City Auto Service, Beaver Falls.

RHODE ISLAND

Hudson—J. Meyer & Son Garage, Providence.

Studebaker—Picard Motor Sales Company, Woonsocket.

SOUTH CAROLINA

Auburn—Central Motor Company, Florence; Gibbes Machinery Company (distributor), Columbia; Thompson Motor Company, Spartanburg; n City Motor Company, Rock Hill; C. L. Rawls, Charleston.

SOUTH DAKOTA

Graham-Paige—Huron Sales Company, Huron.

Willys-Overland—Hendrickson & Miller, Britton.

TENNESSEE

Auburn—Southern Motor Car Company (distributor), Memphis.

TEXAS

Willys - Overland—Wylie Motor Company, Pampa.

Auburn—Associated Motors, Inc. (distributor), San Antonio; Reynolds Motor Company, Richmond.

UTAH

Durant—Franklin Durant Sales Company, Salt Lake City; W. R. Martin, Milford; Kirkman Motor Company, Santaquin; Union Motor Company, Logan; R. T. Mitchell Company, Ogden; Associate Dealers under Franklin Durant Sales.

VERMONT

Graham-Paige—Arthur Wilson, Brattleboro.

Auburn—J. A. Billado, Inc., Rutland.

VIRGINIA

Hudson—Hamner Motor Company, Scottsville.

Willys - Overland—Mays Super Service, Hopewell; Moore Motor Company, Susans.

Auburn—Covington Motor Company, Inc., Suffolk.

WEST VIRGINIA

Hudson—Keyser Tire and Repair Company, Keyser; Vandiver & Leatherman, Burlington.

Willys-Overland—Altmas Motor Sales, Elm Grove.

Auburn—Fleshman Motor Company, Lewisburg.

WISCONSIN

Willys-Overland—Clear Lake Auto Company, Clear Lake; Graese Auto Company, Glenwood City.

Hudson—Walter Implement Company, Mauston.

Auburn—Byron Roberts, Burlington; Ogema Motor Company, Ogema; Homer Reynolds, Lone Rock; Watertown Auburn Company, Watertown; Fonda Garage, Fonda.

Graham-Paige—Johnson Service Garage, Two Rivers.

MAJOR SPECIFICATIONS AND MECHANICAL DETAILS

Make and Model	Weight—5-P. Sedan	Wheel Base	Engine Make	Fan Belt Type	Thermostat Used	Valve Arrangement	Cylinders	Bore and Stroke	Piston Disp.	Compression Ratio	Tax H. P.	Brake, H.P. and Peak R. P. M.	Pist. Make or Material	No. Main Br.	Oil Purifier	Fuel Cleaner	Carburetor	Air Cleaner
Auburn 8-98	3916	127	Lyc	V	Dole	L	8	3 x4¾	268	*5.26	28.8	98@3400	*Alum	5	Pur	—	Sch	No
Austin	§1130	75	Own	F	——	L	4	2.2x3	45.6	5.1	7.8	13@3000	Alum	2	—	—	Til	No
Buick 8-50	3170	114	Own	V	Bish-Bab	O	8	2⅞x4¼	220.7	4.75	26.45	77@3200	CI	5	AC	AC	Mar	AC
Buick 8-60	3795	118	Own	V	Bish-Bab	O	8	3⅛x4⅞	272.6	4.63	30.02	90@3000	CI	5	AC	AC	Mar	AC
Buick 8-80	4255	124	Own	V	Bish-Bab	O	8	3⅜x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Buick 8-90	4340	132	Own	V	Bish-Bab	O	8	3⅜x5	344.8	4.5	35.12	104@2800	CI	5	AC	AC	Mar	AC
Cadillac V-8	4645	134	Own	V	Yes	LV	8	3⅜x4⅛	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	No
Cadillac V-12	5480	140–143	Own	V	Own	O	12	3⅛x4	368	5.5	46.9	135@3400	CI	4	AC	Gas	Own	No
Cadillac V-16	6100	148	Own	V	Yes	O	16	3 x4	452.0	5.50	57.5	165@3400	CI	5	AC	Gas	Own	No
Chevrolet	2685	109	Own	V	No	O	6	3⅛x3¾	194.0	5.00	26.3	50@2600	CI	3	—	AC	Car	AC
Chrysler 6	2850	*175⅞	Own	V	Yes	L	6	3¼x4⅜	217.8	5.35	25.35	70@3200	*Alum	4	—	AC	Sch	Yes
Chrysler 8	3365	*186 1/16	Own	V	Yes	L	8	3⅛x4¼	260.8	5.30	31.25	88@3400	*Alum	5	Yes	AC	Str	Yes
Chrysler 8 De L.	——	187 3/16	Own	V	Yes	L	8	3¼x4¼	282.1	5.20	33.80	94@3400	*Alum	5	Yes	Yes	Str	Yes
Chrysler Imp. 8	4725	*211	Own	V	Yes	L	8	3½x5	384.8	5.01	39.2	125@3200	*Alum	9	Yes	AC	Str	Yes
Cord (Fr. Wh. D.)	4620	137½	Lyc	V	——	L	8	3¼x4½	298.6	5.25	33.8	115@3300	*Alum	5	Pur	AC	Sch	No
De Soto Six	2695	*169 3/16	Own	V	Yes	L	6	3¼x4⅛	205.3	5.20	25.35	67@3200	*Alum	4	—	AC	Car	Yes
De Soto Eight	3025	*177	Own	V	Yes	L	8	2⅞x4¼	220.7	5.40	26.45	77@3400	*Alum	5	—	AC	Str	Yes
De Vaux 6-75	2810	113	Hall	V	Dole	L	6	3⅜x5	214.7	5.41	27.34	70@3400	Alum	4	AC	Ste	Til	AC
Dodge Six	2820	114¼	Own	V	Yes	L	6	3¼x4¼	211.5	5.20	25.35	68@3200	*Alum	4	No	AC	Car	AC
Dodge Eight	3174	118¼	Own	V	Yes	L	8	3 x4¼	240.3	5.40	28.80	84@3400	*Alum	5	Pur	AC	Str	AC
Durant 610	2780	112	Con	V	Bish-Bab	L	4	3⅞x4¼	200	4.80	24.0	50@2800	*Alum	3	AC	AC	Til	Til
Durant 612	2820	112	Con	V	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 614	3010	112	Con	V	Bish-Bab	L	6	3¼x4	199	5.32	25.4	71@3300	*Alum	4	AC	AC	Str	AC
Durant 619	2710	109	Con	V	Bish-Bab	L	6	3¼x4	199.0	5.32	25.4	71@3300	*Alum	4	AC	AC	Til	AC
Essex Super Six	2925	**113	Own	V	——	†L	6	2⅞x4½	175.3	5.80	19.8	60@3300	Alum	3	—	Ste	Mar	AC
Ford A	2375	103½	Own	V	——	L	4	3⅞x4¼	200.5	4.22	24.03	40@2200	Alum	3	—	—	Zen	—
Fr'klin S 15 Trans.	3930	125	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 Trans.	4130	132	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Fr'klin S 15 De L	4220	132	Own	—	Bish-Bab	*O	6	3½x4¾	274	5.30	29.4	100@3100	*Alum	7	AC	AC	Str	AC
Graham Bros. 6	3100	113	Own	V	Yes	L	6	3⅛x4½	207	5.45	23.4	70@3200	*Alum	7	—	AC	Sch	Yes
Graham Std. 6	3265	115	Own	V	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 6	3330	115	Own	V	Yes	L	6	3¼x4½	224	5.45	25.35	76@3400	*Alum	7	—	AC	DL	Yes
Graham Spl. 8	3560	120	Own	V	Yes	L	8	3⅛x4	245	5.45	31.25	85@3400	*Alum	5	AC	AC	DL	Yes
Graham Cust. 8	4100	134	Own	V	Yes	L	8	3¼x4½	298	5.20	33.80	100@3400	*Alum	5	AC	AC	DL	Yes
Hudson Greater 8	3325	119–126	Own	V	——	L	8	2⅞x4½	233.7	5.80	26.4	87@3600	Alum	5	—	Ste	Mar	AC
Hupmobile Cen. 6	2985	114	Own	V	Yes	L	6	3¼x4¼	211.6	5.10	25.35	70@3200	Alum	4	AC	Ste	Str	Yes
Hupmobile Cen. 8	3275	118	Own	V	Pines	L	8	2⅞x4⅝	240.2	5.20	26.45	90@3200	Alum	5	Pur	Ste	Str	Yes
Hupmobile C	3730	121	Own	V	Pines	L	8	3 x4¾	268.6	5.20	28.8	100@3200	CI	5	Pur	Ste	Str	Yes
Hupmobile H & U	**	125–137	Own	V	Pines	L	8	3½x4¾	365.6	5.20	39.2	133@3400	Alum	5	Pur	Ste	Str	AM
La Salle V-8	4635	134	Own	V	Yes	LV	8	3⅜x4⅛	353	5.35	36.45	95@3000	CI	3	AC	Gas	Own	—
Lincoln	5300	145	Own	V	Ful	L	8	3½x5	384	5.23	39.2	120@2900	Alum	5	Pur	Ste	Str	Un
Marmon 70	2823	112¾	Own	V	Pines	L	8	2⅞x4¼	211.2	5.50	25.4	84@3400	Alum	5	AC	AC	Str	AC
Marmon 88	4375	130-136	Own	V	Pines	L	8	3¼x4¾	315.2	5.50	33.8	125@3400	Alum	5	AC	AC	Str	AC
Marmon 16	5360	145	Own	V	Pines	O	16	3⅛x4	490.8	6.00	62.5	200@3400	Alum	5	AC	AC	Str	AC
Nash 960	2800	114¼	Own	V	Bish-Bab	L	6	3⅛x4⅜	201.3	5.00	23.4	65@3200	*Alum	7	AC	AC	Car	AC
Nash 970	3000	116¼	Own	V	Bish-Bab	L	8	2⅞x4⅜	227.2	5.00	26.4	78@3300	*Alum	9	AC	AC	Str	AC
Nash 980	3360	121	Own	V	Bish-Bab	O	8	3 x4¼	240	5.25	28.8	94@3400	*Alum	9	AC	AC	Str	AC
Nash 990	4000	124–133	Own	V	Bish-Bab	O	8	3¼x4½	298.6	5.25	33.8	115@3600	*Alum	9	AC	AC	Str	AC
Oakland V-8	3260	117	Own	V	Yes	H	8	3⅛x3⅜	251.0	5.00	37.8	85@3400	S St	3	—	AC	Mar	AC
Oldsmobile	2935	113½	Own	V	——	L	6	3⅜x4⅛	197.5	5.06	24.4	65@3350	CI	4	AC	AC	Str	AC
Packard 901-902	4570	129½-136½	Own	V	——	L	8	3⅜x5	320.0	6.00	32.5	110@3200	*Alum	9	Yes	Yes	Own	AC
Packard 903-904	5045	142⅛-147⅛	Own	V	——	L	8	3½x5	384.8	6.00	39.2	135@3200	*Alum	9	Yes	Yes	Own	AC
Peerless St. 8	3642	118	Con	V	Bish-Bab	L	8	2⅞x4¾	246.0	5.00	26.45	90@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Master 8	4521	125	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless De L.	4521	125	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	115@3200	*Alum	5	Pur	AC	Sch	AC
Peerless Custom 8	4766	138	Con	V	Bish-Bab	L	8	3⅜x4½	322	5.00	36.45	120@3200	*Alum	5	Pur	AC	Sch	AC
Pierce-Arrow 43	4304	134–137	Own	V	Yes	L	8	3½x4¾	366	5.07	39.2	125@3000	*Alum	9	Han	AC	Str	Un
Pierce-Arrow 41-42	4831	142–147	Own	V	Yes	L	8	3½x5	385	5.07	39.2	132@3000	*Alum	9	Han	AC	Str	Han
Plymouth	2710	*170	Own	V	——	L	4	3⅝x4¾	196.1	4.90	21.03	56@2800	*Alum	3	—	AC	Car	Yes
Pontiac	2845	112	Own	V	Yes	L	6	3⅛x3⅞	200.0	4.90	26.3	60@3000	S St	3	—	AC	Mar	AC
Reo Royale 8-35	4650	135	Own	V	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo Royale 8-31	4375	131	Own	V	Pines	L	8	3⅜x5	358	5.30	36.48	125@3300	Alum	9	Han	AC	Sch	Own
Reo 8-21	3610	121	Own	V	Yes	L	8	3 x4¾	268.6	5.37	28.8	90@3300	Alum	5	Han	—	Sch	Un
Reo 6-21	3525	121	Own	V	Yes	L	6	3⅜x5	268.3	5.30	27.3	85@3200	Alum	7	Han	—	Sch	Un
Reo Fly. Cloud 6-25	3950	125	Own	V	Pines	L	6	3⅜x5	268.0	5.30	27.34	85@3200	Alum	7	Han	V-S	Sch	Un
Studebaker Six	2920	114	Own	V	Dole	L	6	3¼x4⅛	205.3	5.20	25.4	70@3200	CI	4	Pur	Ste	Str	No
Studebaker Dict. 8	3095	114	Own	V	Dole	L	8	3⅛x3¾	221.0	5.00	30.0	81@3200	Alum	9	Pur	Ste	Str	AM
Studebaker Com. 8	3520	124	Own	V	Dole	L	8	3⅛x4¼	250.4	5.20	30.0	101@3200	Alum	9	Pur	Ste	Str	Un
Studebak'r Pres. 80	4250	130	Own	V	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	Ste	Str	AM
Studebak'r Pres. 90	*4360	136	Own	V	Dole	L	8	3½x4⅜	337	5.10	39.2	122@3200	*Alum	9	Han	—	Str	AM
Stutz LA	4320	127½	Own	—	Bish-Bab	O	6	3⅜x4½	241.5	5.10	27.3	85@3150	*Alum	7	Wal	AC	Zen	Un
Stutz MA	4918	134½	Own	—	Bish-Bab	O	8	3⅜x4½	322	5.10	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz MB	4863	145	Own	—	Bish-Bab	O	8	3⅜x4½	322	5.10	36.4	113@3300	*Alum	9	Wal	AC	Zen	AM
Stutz DV 32	5240	134½	Own			O	8	3⅜x4½	322	5.10	36.4	155@3900	Alum	9	Wal	Ste	Sch	AM
Willys 6-97-98 D	*	110–113	Own	V	Var	L	6	3¼x3⅞	193	5.26	25.3	65@3400	CI	4	—	AC	Til	Til
Willys 8-80 D	3131	121	Own	V	Var	L	8	3⅛x4	245.4	5.26	31.25	80@3200	CI	5	—	AC	Til	Til
Willys-Knt. 66-D	3400	121	Own	V	Var	K	6	3⅜x4¾	255	5.26	27.3	87@3200	*Alum	7	Ski	Til	Til	Til

Contemporary Comment

(Continued from Page 4)

Unlike manufacturing enterprises the railroads operate under strict government regulation. Many steps taken by industrial companies to effect economies in operation are forbidden the railroads because of this government control. A manufacturer can shut down or dismantle a plant if it proves unprofitable, but a railroad cannot abandon a money-losing branch line unless it can obtain Federal and sometimes state approval.

Many of the class I roads have performed wonders in recent years in increasing the efficiency of operations . . . in spite of everything the railroads have done to reduce costs and to stimulate traffic, however, their profits have dropped to the danger point.

If industry could be certain that the proposed rates—injected into business at a time when prices are bouncing off bottom—are the serum that will put the patient on the path of recovery, then the increased freight bill would be cheap at half the price.—*Steel.*

* * *

PROGRAMS of Federal, state and local governments for road construction in the calendar year 1931 call for a total expenditure of $1,616,000,000, an increase of approximately $15,000,000 over the 1930 calendar year, according to a statement made public July 2 by the White House based upon a survey conducted by the Bureau of Public Roads, Department of Agriculture.

The Federal government's contribution to the road-building program is placed at $259,897,000, or an increase of $154,249,000 over the calendar year 1930.

Programs of local highway and bridges call for estimated expenditures of $586,340,402 in the calendar year 1931, a decrease of $77,326,598, as compared with the preceding calendar year.

Expenditures on state and highway construction programs for the calendar year 1931 are estimated at $1,029,770,161; an increase of $92,269,706 as compared with the calendar year 1930. Under the latter program, thirty-nine states show an increase of $165,205,241 over the calendar year 1930, while nine states show a decrease of $72,935.535. —*The United States Daily.*

OF PRESENT AMERICAN PASSENGER CAR MODELS

Make and Model	Front End Drive	Ignition System	Gen. and Starter	Clutch	Transmis'n and Speeds	Universals	Rear Axle	Ratio	Brakes	Steering Gear	Spring Rear	Springs Shackles	Chassis Lubric.	Tires
Auburn 8-98	Chain	Del-R	*Del-R	Long	D-SM 3†	Un P	Col ½	*4.45	S D	Ross	S 56¾	Own	Bijur	17x5.50
Austin	Gear	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	5.25	M	Say-B	Cant	Own	Al-Z	18x3.75
Buick 8-50	Tex	Del-R	Del-R	Own	Mun 3	Own	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Al-Z	18x5.25
Buick 8-60	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.45	M	Sag	S 55¼	Own	Alem	19x5.50
Buick 8-80	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Buick 8-90	Tex	Del-R	Del-R	Own	O-SM 3	Own	Own ¾	4.27	M	Sag	S 58⅞	Own	Al-Z	19x6.50
Cadillac V-8	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.75	Own-M	Sag	S 58	Own	Al-Z	19x6.50
Cadillac V-12	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	——	Own-M	Sag	S 58	Own	Alem	19x7.00
Cadillac V-16	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.39	Own	Sag	S 60	Own	Alem	19x7.00
Chevrolet	Var	Del-R	*Del-R	Own	Own 3	Own	Own	4.10	M	Sag	S 54	——	Alem	19x4.75
Chrysler 6	Morse	Del-R	Del-R	Own	Own 3	Un P	Own ½	4.60	H	War	S 53⅜	Tryon	Al-Z	19x5.25
Chrysler 8	Morse	Del-R	Del-R	—	Own 4	—	Own ½	4.10	H	War	S 54⅝	——	Al-Z	17x7.50
Chrysler 8 De L.	Morse	Del-R	Del-R	—	Own 4	—	Own ½	4.30	H	——	S 54⅝	——	Al-Z	17x6.50
Chrysler Imperial 8	Morse	Del-R	Del-R	—	Own 4	—	Own ½	3.81	H	Ross	S 57½	——	Al-Z	18x7.00
Cord (Fr. Wh. Dr.)	Link	Del-R	*Del-R	Long	Detr 3	UnP&MM	Col F	4.80	H	Gem	S 62	Own	Bijur	18x7.00
De Soto Six	Var	Del-R	Del-R	—	Own 3	—	Own ½	4.33	H	Own	S 53⅛	——	Al-Z	19x5.00
De Soto Eight	Var	Del-R	Del-R	—	Own 3	—	Own ½	4.60	H	Own	S 54⅝	Rub B	Al-Z	19x5.25
De Vaux 6-75	Morse	Aut-L	*Aut-L	Borg	NP 3	Spic	NP ½	4.40	S D	NP	S 54¼	Tryon	Al-Z	19x5.00
Dodge Six	Morse	Del-R	Del-R	Borg	Own 3	Spic	Own ½	4.60	H	War	S 55¼	Tryon	Al-Z	19x5.00
Dodge Eight	Morse	Del-R	Del-R	Borg	Own 3	Spic	Own ½	4.60	H	War	S 54⅝	Rub B	Al-Z	18x5.50
Durant 610	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	3.96	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 612	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	4.45	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 614	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	4.45	S D	Own	S 55	Tryon	Al-Z	19x5.00
Durant 619	Morse	Aut-L	*Aut-L	Borg	W C 3	Spic	Own ½	3.90	S D	Own	S 54	Tryon	Al-Z	19x4.75
Essex Super Six	Morse	Aut-L	*Aut-L	Own	Own 3	Spic	Own ½	5.41	Bendix	Gem	S 54⅛	Own	Alem	19x5.00
Ford A	Var	Own	*Own	Own	Own 3	Own	Own ¾	3.78	M	Gem	S Tr39	Own	Al-Z	19x4.75
Franklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	**	MM	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 Trans.	Chain	Del-R	*Del-R	Br-L	**	MM	Own ½	‡4.54	H	Gem	El 42	None	Al-Z	19x6.50
Franklin S 15 De L	Chain	Del-R	*Del-R	Br-L	War-G	Spic	Own ½	‡4.73	H	Gem	El 42	None	Al-Z	19x6.50
Graham Pros. 6	Link	Del-R	*Del-R	Long	— 3	—	——	4.45	H	Ross	S 54	ERS	Al-Z	19x5.00
Graham Std. 6	Link	Del-R	*Del-R	Long	— 3	—	——	4.30	H	Ross	S 54	ERS	Al-Z	5.50x18
Graham Spl. 6	Link	Del-R	*Del-R	Long	— 4	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Spl. 8	Link	Del-R	*Del-R	Long	— 4	—	——	4.09	H	Ross	S 54	ERS	Al-Z	6.00x17
Graham Cust. 8	Link	Del-R	*Del-R	Long	— 4	—	——	4.09	H	Ross	S 56	ERS	Al-Z	6.50x18
Hudson Greater 8	Morse	Aut-L	*Aut-L	Own	Own 3	Spic	Own ½	4.75	Bendix	Gem	S 54⅛	Own	Alem	18x5.50
Hupmobile Cen 6	Chain	Aut-L	*Aut-L	Borg	War-G 3*	MM	Sal ½	4.70	S D	Ross	S 53	Tryon	Al-Z	19x5.50
Hupmobile Cen 8	Morse	Aut-L	*Aut-L	Borg	War-G 3*	Un P	Sal	4.55	S D	Ross	S 52¾	Rub B	Al-Z	19x5.50
Hupmobile C	Morse	Aut-L	*Aut-L	Long	War-G 3*	Un P	Own ½	4.55	S D	Ross	S 54	Own	Alem	19x6.00
Hupmobile H and U	Morse	Aut-L	*Aut-L	Long	War-G 3*	Un P	Own ½	4.07	S D	Ross	S 57	Own	Alem	19x6.50
La Salle V-8	Morse	Del-R	Del-R	Own	O-SM 3	Spic	Own ¾	4.75	Own-M	Sag	S 58	Own	Alem	19x6.50
Lincoln	——	Aut-L	*Aut-L	Long	Own 3*	Spic	Tim F	4.58	Bendix	Own	S 62	Own	Alem	7.00x19
Marmon Eight-70	Diam	Del-R	*Del-R	Rock	War-G 3	Spic	Sal ½	4.70	Bendix	Ross	S 54⅛	Tryon	Al-Z	29x5.50
Marmon 88	Diam	Del-R	*Del-R	Rus	Detr 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Al-Z	19x6.50
Marmon 16	Diam	Del-R	Del-R	Rus	Mun	Spic	Sal ½	3.78	Bendix	Ross	S 60	Rub B	Al-Z	18x7.00
Nash 960	Cel	Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.73	M	Ross	S 50⅞	——	Alem	19x5.00
Nash 970	Diam	Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.73	M	Ross	S 50⅞	——	Alem	19x5.25
Nash 980	Diam	*Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.46	M	Gem	S 55	——	Bijur	18x6.00
Nash 990	Diam	*Aut-L	*Aut-L	Borg	O-SM 3	Own	Own ½	4.50	M	Gem	S 57⅛	——	Bijur	19x6.50
Oakland V-8	Morse	Del-R	Del-R	Own	M-SM 3	MM	Own ½	3.90	M	Sag	S 54½	Inlox	Al-Z	28x5.50
Oldsmobile	Chain	Del-R	Del-R	Borg	M-SM 3	Un-P	Own ½	4.54	Bendix	Sag	S 54½	Tryon	Alem	28x5.25
Packard 901-902	Morse	—	——	——	O-SM 4	—	Own ½	—	M	Own	S 60½	——	Bijur	6.50x19
Packard 903-904	Morse	—	——	——	O-SM 4	—	Own ½	—	M	Own	S 60½	——	Bijur	7.00x19
Peerless St. 8	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.70	Bendix	Ross	S 56⅛	Rub B	Alem	29x5.50
Peerless Master 8	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless De L.	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.00
Peerless Custom 8	Morse	Aut-L	*Aut-L	Rock	War-G 3	Spic	Sal ½	4.45	Bendix	Ross	S 60	Rub B	Alem	31x6.50
Pierce-Arrow 43	Gear	Del-R	Del-R	Long	Own 3	Spic	Own ½	4.08	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Pierce-Arrow 41-42	Chain	Del-R	Del-R	Long	Own 3	Spic	Own ½	*	Bendix	Ross	S 61	Faf	Al-Z	18x7.00
Plymouth	Var	Del-R	Del-R	Rock	Own 3	Own	Own ½	4.33	H	War	S 53⅜	Tryon	Al-Z	19x4.75
Pontiac	Morse	Del-R	Del-R	Own	Own 3	MM	Own ½	3.90	M	Sag	S 54	Inlox	Al-Z	29x5.00
Reo Royale 8-35	Morse	Del-R	Del-R	Long	Own 3	Un P	Own ½	4.07	H	Ross	S 57½	Own	Far	6.50x18
Reo Royale 8-31	Morse	Del-R	Del-R	Long	Own 3	Un P	Own ½	4.07	H	Ross	S 57½	Own	Al-Z	6.50x18
Reo 8-21	Link	Del-R	Del-R	Long	Own 3	Un-P	Own	4.42	H	Ross	S 56⅛	Tryon	Al-Z	17x6.00
Reo 6-21	Morse	Del-R	Del-R	Long	Own 3	Un-P	Own	4.07	H	Ross	S 56⅛	Tryon	Al-Z	17x6.00
Reo Fly. Cloud 6-25	Morse	Del-R	*Del-R	Long	Own 3	Un-P	Own ½	4.42	H	Ross	S 55¾	Own	Al-Z	17x6.50
Studebaker Six	Chain	Del-R	*Del-R	Long	Own 3*	Spic	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Dict. 8	Var G	Del-R	*Del-R	Long	Own 3*	Spic	Own ½	4.73	Bendix	Ross	S 54	Tryon	Alem	19x5.25
Studebaker Com. 8	Var G	Del-R	*Del-R	Long	Own 3*	Spic	Own ½	4.73	Bendix	Ross	S 56	Faf	Al-Z	19x6.00
Studebaker Pres. 80	Var G	Del-R	Del-R	Long	Own 3*	Spic	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Studebaker Pres. 90	Var G	Del-R	Del-R	Long	Own 3*	Spic	Own ½	4.31	Bendix	Ross	S 60	Faf	Al-Z	19x6.50
Stutz LA	——	Del-R	Del-R	Borg	Detr 4	Un P	Sal ½	4.75	H	Gem	S 60	Own	Bijur	19x6.00
Stutz MA	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x6.50
Stutz MB	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	20x7.00
Stutz DV 32	——	Del-R	Del-R	Long	Detr 4	MM	Tim ½	4.75	H	Gem	S 62¼	Own	Bijur	18x7.00
Willys 6-97-98 D	Chain	Aut-L	*Aut-L	Borg	Own 3	Spic	Own ½	4.60	Bendix	Own	*S-49¾	Tryon	Alem	19x5.00
Willys 8-80 D	Chain	Aut-L	*Aut-L	Borg	Own 3	Spic	Own ½	4.40	Bendix	Ross	S 56	Tryon	Alem	18x5.50
Willys-Knight 66 D	Chain	Aut-L	*Aut-L	Rock	Own 3	Spic	Own ½	4.18	Bendix	Ross	S 56	Tryon	Alem	18x6.00

KEY TO ABBREVIATIONS

Weight—‡Austin standard 2 passenger coupe. **Hupmobile model H weighs 4,096 pounds, and model U 4,360 pounds. *Studebaker, 7 pass. sedan. *Willys 6-97D weighs 2,670 and the 98 D weighs 2,706 pounds.

Wheel Base—*Over all length of chassis instead of wheel base, which manufacturers refuse to give. **Essex, seven-passenger sedan available on 119-inch wheel base.

Engine Make—Con. Continental; Lyc. Lycoming, Hall, De Vaux-Hall Motors Corp.

Fan Belt Type—V, V-type; F, flat.

Thermostat—Bish-Bab. Bishop & Babcock; Dole, Dole Valve Co., Chicago, Ill.; Ful. Fulton Co.; Pines, Pines Winterfront; Var, various makes.

Valve Arrangement—L, L head; H, horizontal; O, overhead; K, sleeve valve; LV, V-type L head.

*Air cooled. †Thermo syphon water circulation.

Compression Ratio—*Optional on the Auburn.

Piston Material—*Alum, aluminum with invar struts; Alum, aluminum alloy; CI, cast iron; S St, semi-steel.

Oil Purifier—Fur, Purolator; Wal, Wall; Han, Handy; AC, AC Spark Plug Company; Ste, Stewart-Warner; Ski, Skinner.

Fuel Cleaner—AC, AC Spark Plug Co.; Gas, Gascolator; Ste, Stewart-Warner; Til, Tillotson; V-S, Van Sicklen.

Carburetor—Sch, Wheeler Schebler; Zen, Zenith; Mar, Marvel; Car, Carter; Str, Stromberg; DL Detroit Lubricator; Til, Tillotson.

Air Cleaner—AC, AC Spark Plug Company; AM, Air Maze; Han, Handy; Un, United; Til, Tillotson.

Front End Drive—Link, Link Belt; Tex, Texolite; Cel, Celeron; Diam, Diamond Chain; Morse, Morse Chain Company; Var, various makes of chains; Var-G, various makes of gears.

Ignition, Generator and Starter—Aut-L, Auto-Lite; Del-R, Delco-Remy; N. E., North East; *Nash-Indicates twin ignition.
*Bendix starter used.

Clutch—Borg, Borg & Beck; Br-L, Brown-Lipe; Rock, Rockford Machine; Long, Long Clutch Company; Rus, Russell Mfg. Co.

Transmission—War G., Warner Gear Company; Detr, Detroit Gear; Mun, Muncie Gear; WC, Warner Corporation; D-SM—Detroit Synchro-Mesh; O-SM—Own, Synchro-Mesh; M-SM—Muncie. Synchro-Mesh. N.P.—New Process Gear Corp.

**Franklin Transcontinent models are equipped with both Warner and Detroit 3 or 4 speed gear sets according to body type.

***Free Wheeling.**

†Free wheeling on Auburn De Luxe models only.

Universals—Un P, Detroit Universal Products Company; Spic, Spicer Manufacturing Corporation; MM, Mechanics Universal Joint Company.

Rear Axle—Col, Columbia; Sal, Salisbury; Tim. Timken; N.P., New Process Gear Corp.; ½-Semi-floating; ¾-¾ floating; F-Full floating.

Ratio—Optional on the Auburn. *On Pierce Arrow 43, 137 in. W. B. rear axle ratio is 4.42. On model 41 rear axle ratio is 4.42. On model 42 ratio is 4.23.

†The axle ratio varies with body types on Franklin models.

Brakes—H, hydraulic; M, mechanical; SD, steeldraulic; Bendix, Bendix Brake Corp

Steering Gear—Gem, Gemmer; Ross, Ross Gear and Tool Company; Sag, Saginaw; Say-B, Saylor-Beall Manufacturing Company; War, Warner; N.P., New Process Gear Corp.

Rear Springs—S, semi-elliptic; El, full elliptic; Cant, semi-cantilever; S-Tr, semi-transverse. *Rear spring length on Willys, 6-98D is 51 in.

Spring Shackles—Tryon, Willys-Morrow Company; Rub B, Rubber Shock Insulator Company; Faf, Fafnir Bearing Company; ERS, Eaton Rubber Bushings; Inlox—Inland Mfg. Co.

Chassis Lubricator—Alem, Alemite; Al-Z, Alemite Zerk; Bijur, Bijur Lubricating Corp.; Far, Farval.

TWO FORD DEALERSHIPS IN IOWA ARE COMBINED

Cedar Rapids, Ia., July 8.—The Cedar Rapid Motor Company, 110 1st St. S. W., Ford dealer, has been acquired by the Rude Auto Company, 511 2d Ave., S. E., Perry Rude, president of the latter concern, has announced, effective at once. The two sales organizations will be combined in the Rude Auto Company headquarters.

Foreign Trade Opportunities

Washington, D. C., July 8.—Foreign automotive trade opportunities just announced by the automotive division of the Bureau of Foreign and Domestic Commerce of the Department of Commerce are listed below.

Additional information may be obtained from the bureau and its district and co-operative offices by duly registered firms or individuals upon written request, giving the opportunity number.

52214—Genoa, Italy; agency for automobile greasing equipment, electric or compressed air operated.

52225—Edmonton, Canada; agency for automobile ignition parts and spark plugs.

52298—Cali, Colombia; agency for automobile spare parts.

52212—Neuilly, France; agency for automobiles, trucks and trailers and parts.

SEATTLE SAFETY LANE UNCOVERS CONSIDERABLE SERVICE SHOP WORK

Seattle, Wash., July 8.—During the five days' operation of the Weaver Safety Lane, in Seattle, a total of 2,302 cars were run through. This is considered a fair number, in view of the rainy weather during a portion of the time, and due to the number of new men used on the work.

Of this number, results were as follows: Defective brakes, 776; defective headlights, 1,391; defective tail lights, 175; defective stoplights, 652; improper wheel alignments, 482; defective horns, 18; defective windshield wipers, 57; no mirrors, 19, and steering defects, 338. Of the total number, only 441 cars were given the coveted O. K. stickers for the windshield, the first time tested, while 443 remedied the defects and came back for the O. K. stickers.

Harold Emerick, for Weaver Manufacturing Company, was in charge. The lane was conducted by the Seattle Traffic Safety Council, with assistance of A. A. A., A. M. A., Police Department and Seattle Automobile Dealers' Association.

BRIDGEPORT BRASS CO. ELECTS E. S. M'CLARY

Bridgeport, Conn., July 8.—Ernest S. McClary has been elected assistant secretary and treasurer of the Bridgeport Brass Company, succeeding George T. Wigmore of Waterbury, who recently resigned. Mr. McClary joined the Connecticut concern, in March, 1922, as its entroller. He was named assistant secretary and treasurer in 1928.

Leonard M. Allen, credit manager, was appointed assistant treasurer, and Willam R. Breetz, chief accountant, becomes assistant secretary. Selwyn Bywater has been elected to the board of directors to succeed Wigmore.

MOTOR PARTS, BOSTON, IN LARGER QUARTERS

Boston, Mass., July 8.—To care for its increasing business, the Motor Parts Company of Boston recently celebrated its twentieth year in business by moving to larger quarters at 64 Brookline Ave. The company now has six mechanics busy all the time rebuilding and reconditioning automobile and marine motors, while six salesmen are kept on the road the year 'round, handling the parts and specialties that the company distributes, including the Bosch ignition and magneto supplies, Pedrick piston rings, Zenith carburetors and several other well-known products.

GRAY PROCESSES CORP. ELECTS A. M. GRAY, HEAD

Newark, N. J., July 8.—A. McDowell Gray of Elizabeth has been elected president of the Gray Processes Corporation, whose plant is in Frelinghuysen Avenue, Newark. The choice of Mr. Gray fills a vacancy caused by the recent death of his brother, Thomas P. Gray. The new head of the organization has had thirty years of experience in the oil refining business and has obtained numerous equipment patents relating to that industry.

A NEW SERVICE FIRM

Jersey City, N. J., July 8.—Reliable Garage & Auto Service Company, Inc., has been incorporated. Orville A. Allaire and Mary C. Allaire, Jersey City, and Joseph C. Lutton, Bayonne, are the incorporators.

TIMKEN ROLLER BEARING PROMOTES Y D. HILLS

Los Angeles, July 8.—Y. D. Hills, formerly Seattle branch manager for Timken Roller Bearing Company, has been named Los Angeles branch manager of that company.

AUTOMOTIVE EQUIPMENT SALES UP IN PHILADELPHIA

Philadelphia, July 8.—Distribution of automotive equipment has been increasing during the last two months, but volume, thus far this year, is about 5 per cent. below the 1930 figures.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

Production - - Engineering - - Factory -

Properties of Malleable Iron Castings

The following is part of the first symposium on malleable iron castings planned by the American Foundrymen's Association and the American Society for Testing Materials. It was prepared by a committee of the two societies for the purpose of providing the engineering profession with authoritative data in concise form on the properties of metal castings produced by the best present methods.

Malleable iron castings consist of a mixture of iron, in the form of ferrite, and free carbon or graphite in the form of "temper" carbon. Combined carbon as cementite or pearlite should not be present in properly annealed malleable iron, but the elements silicon, manganese, phosphorus and sulphur are present. The percentages of these elements and of carbon may vary considerably in different types of iron, depending upon the properties desired, especially tensile strength. (In general, carbon and tensile strength vary inversely.) Also, carbon at the center of a thick section may be nearly the initial total carbon, and very thin sections may be almost completely decarburized. Therefore, the following tabulation of average chemical composition is at best only approximate, and should be interpreted in the light of the preceding statement:

Carbon	1.00 to 2.00 per cent
Silicon	0.60 to 1.10 "
Manganese ..	under 0.30 "
Phosphorus ..	" 0.20 "
Sulphur	0.06 to 0.15 "

(usually about 0.10 per cent.)

Inasmuch as there is no combined carbon in malleable iron, phosphorus may be present in the amount indicated without danger of cold shortness. Also, since malleable iron is not hot-worked, a sulphur content within the range indicated is not objectionable.

Specific Gravity

The specific gravity of malleable iron varies with the carbon content and is best expressed as ranging from 7.15 to 7.45 at 20° C., referred to water as 1 at 4° C. Values reported by four investigators follow:

Specific Gravity of Malleable Iron

	Max.	Min.	Aver.	No. of Tests
No. 1 ..	7.40	7.15	.....	37
No. 2 ..	7.35132	7.33531	7.3440	5
No. 3 ..	.....	.....	7.42	5
No. 4 ..	7.45	7.25	7.40	..

Careful measurements of linear expansion of malleable iron when heated over varying temperature ranges, made by three investigators, have been plotted in Fig. 7, in which the ordinates are expansion per unit length, considering length at 20 degrees centigrade as unity. Coefficients of expansion for various temperature ranges may be determined from the curve plotted, and will increase slightly with higher temperatures. For temperatures up to approximately 400 degrees centigrade (750 degrees Fahrenheit) a value of coefficient of expansion per degree centigrade sufficiently accurate for ordinary computations is 0.000012 (0.0000066 per degrees Fahrenheit).

Specific Heat:

Direct calorimetric determinations of mean specific heat of malleable iron between room temperature (20 degrees centigrade) and various higher temperatures are reported as follows:

Mean Specific Heat

Temp. Range. Deg. C.	Calories Per Gm. Per Deg. C.
20—100	0.122
20—200	0.125
20—300	0.128
20—400	0.133
20—500	0.139
20—600	0.146
20—700	0.159

Since malleable iron is a mechanical mixture of approximately pure iron and graphite, its specific heat should be calculable from the data from these substances. Such a calculation gives 0.1102 calories per gram per deg. C. at room temperature. This is approximately concordant with the direct observations, but a little lower.

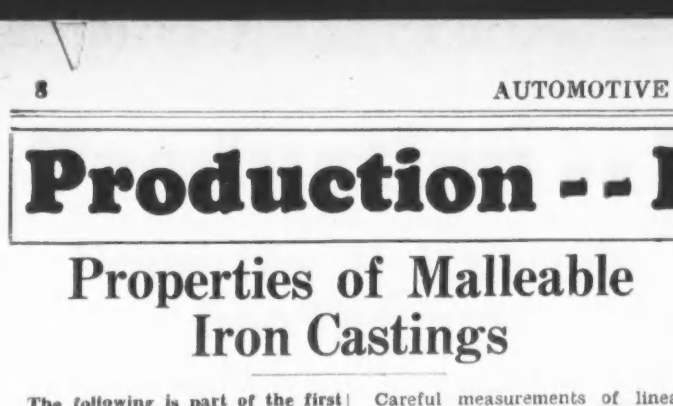


FIG. 1—Thermal expansion of malleable iron

Tensile Strength, Yield Point, Elongation:

Average values of tensile strength, yield point and elongation of malleable iron, determined from the results of upward of twenty thousand tests reported by seventeen investigators, are as follows:

Tensile strength..54,000 lb. per sq. in.
Yield point .....36,000 lb. per sq. in.
Elongation in 2 inches..18 per cent.

Reference should be made to Table 1 for details, showing the average, maximum and minimum values reported by each investigator. It is desired to point out that these tests cover malleable irons of several more or less well-defined ranges of strength and ductility, and the values reported should be interpreted accordingly.

For this reason, it would be more misleading than helpful to attempt to indicate from these data a range of tensile strength, yield point and elongation values that can be expected in ordinary commercial practice.

However, it has been possible to make a statistical analysis of another set of data giving tensile strength, yield point and elongation of 5,000 bars from heats made to meet standard specifications. These data are presented in Table 2; average values and standard deviations are reported, together with a brief discussion on the distribution of the observed values. While not directly applicable to the particular data given in Table 1, the analysis of range of values for these 5,000 tests yields interesting supplementary information, especially in view

(Continued on Page 9)

TABLE 1.—Data on Tensile Properties of Malleable Iron Compiled From Seventeen Sources

Investigator	Tensile Strength lb. per sq. in.			Yield Point lb. per sq. in.			Elongation in 2 in., per cent.			No. of Tests
	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	
No. 1	59,000	45,000	54,000	.....	.....	.....	26.0	10.0	18.0	6000
No. 2	58,530	53,000	56,250	39,600	35,000	36,700	27.5	15.0	20.5	4000
No. 3	56,880	50,000	52,460	37,800	34,450	37,310	21.5	10.5	16.3	200
No. 4	55,850	47,850	52,890	37,800	32,300	34,650	22.0	13.5	17.9	75
No. 5	62,140	54,400	57,920	43,020	34,960	38,230	30.4	19.5	25.7	1210
No. 6	62,880	52,150	56,350	39,280	35,780	37,380	28.5	15.0	21.8	300
No. 7	56,000	50,000	53,000	37,000	35,000	36,000	27.5	10.0	20.0	50
No. 8	58,000	50,000	55,000	40,000	30,000	35,000	25.0	10.0	20.0	....
No. 9	61,300	49,000	55,000	38,000	32,000	35,000	31.0	10.0	19.0	3200
No. 10	59,800	50,000	53,970	.....	.....	.....	28.0	10.0	17.5	289
No. 11	60,600	46,600	52,670	40,400	36,940	38,700	21.5	8.0	14.2	36
No. 12	58,000	50,000	53,000	38,000	30,000	35,000	25.0	12.0	18.0	500
No. 13	62,000	51,000	53,000	39 800	35,000	36,000	32.0	15.0	18.0	....
No. 14	56,640	45,550	51,170	.....	.....	.....	22.0	9.0	14.6	107
No. 15	61,500	45,000	53,710	41,000	33,500	36,530	33.0	13.0	18.0	3300
No. 16	58,000	50,500	55,500	38,500	34,500	36,500	28.0	10.5	22.0	510
No. 17	56,160	50,480	52,830	37,070	35,030	35,900	23.0	15.0	17.5	59
Average tensile strength			54,040	Avg. yield pt.		36,350	Avg. elong't'n		18.4	

Note 1.—All tests in this tabulation are reported on the A. S. T. M. standard test specimen for malleable castings, tested in the "as-cast" condition.

Note 2.—The iron is air-furnace iron in all but two cases; the irons reported by No. 1 were made some by the air-furnace process and some by the electric-furnace process; and the irons reported by investigator No. 5 were made by the open-hearth process.

METAPUMPS HAND OR MECHANICALLY OPERATED

Model 328 Merit "Metapump"

Merit "Metapumps," designed to dispense automobile lubricants, have been introduced by Merit Equipment Company, Cleveland, O.

They are available in both hand operated and mechanically operated models. The hand-operated model, No. 328, illustrated, has a capacity of twenty-five pints of gear lubricant, is equipped with five feet special black rubber hose and self-closing, non-drip nozzle. It can be equipped with bent extension and special lengths of rubber or cotton covered, wire interwoven, lined hose.

SHALER DEVELOPS WAX TO PREVENT SPOTTING OF CLOTHING

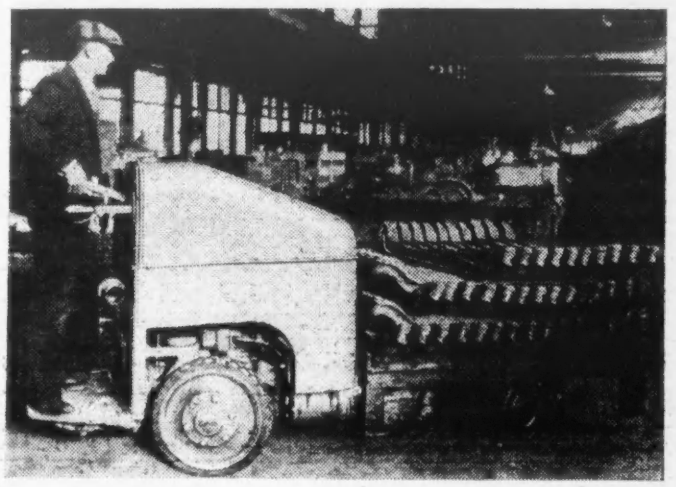
Milwaukee, Wis., July 8.—The Shaler Company is turning out at its local plant a new kind of wax suitable for application to the door locks and hinges of new automobiles developed to prevent spotting of clothing. The liquid has been so prepared that it comes out of the can in a highly penetrative state and instantly dries to a waxy surface which cannot be washed off by water, it is claimed.

NEW LEAFLET ENUMERATES USES OF PYRO

A new illustrated leaflet prepared by the United States Industrial Alcohol Company describes a number of uses for Pyro in addition to its function as an anti-freeze.

Among the uses mentioned are: Removing carbon from internal combustion engines; freeing sticky valves by injection of the fluid into the carbureter intake; removing moisture from the fuel supply and various cleaning operations.

Rear-Drive Tructractor Steers on Four Wheels



Clark Truclift with rear-wheel drive and four-wheel steer

Clark Tructractor Company, Battle Creek, Mich., has introduced a new lifting type power truck with four-wheel steer and rear-wheel drive on which the steering wheels can be turned to a sharp angle.

A cast steel frame, full floating rear axle, hydraulic lifting mechanism with automatic control and a tractor type gas engine with engine speed governed to less than 1,400 r. p. m. feature the construction. The acceleration under load is a distinctive feature, it is claimed.

One model has a narrow platform to accommodate U. S. standard 12-in. under-clearance skid platforms. It lifts a 3-ton load in 9 sec., and has a turning radius of 94 in.

A heavier model lifts 4 tons in 8 sec., has a speed of from 1 to 6 m. p. h. and turns on a 94-in. radius.

MAKES TELESCOPIC CLUTCH PILOT TOOL

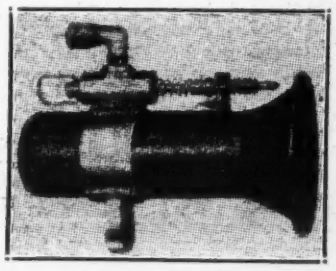
A new clutch pilot tool designed to facilitate holding the clutch hub in line with the pilot bearing before inserting the transmission shaft is announced by the Accurate Parts Manufacturing Company, Cleveland, O. It consists of five telescoping tubes that can be adjusted to fit any size clutch hub, it is claimed.

TO AWARD PRIZES FOR OUTBOARD CRUISER STORIES

Prizes totaling $250 in cash will be awarded to writers of outboard cruiser stories, it is announced by Outboard Motor Corporation, Milwaukee, Wis.

The contest is open to outboard cruiser owners. Exceptional literary ability is not required, according to the announcement, but all stories must be based on actual outboard cruises.

INTRODUCES NOVELTY HORN

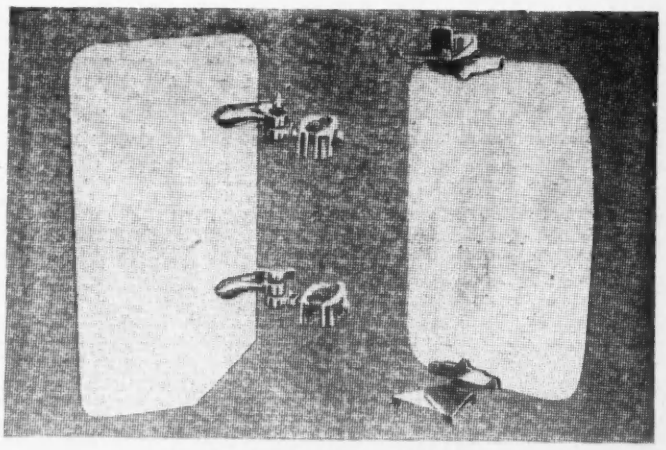


RHAMSTINE "ma-ma" horn

A new automobile horn which cries "ma-ma" is manufactured by J. Thomas Rhamstine, Detroit, Mich.

It is operated from the intake manifold and is finished in chromo plate, with an enameled mouthpiece. It sells for $10.

Reliance Adds Win-Wings And Kleensall Dust Cloth



CLAMP-ON Win-Wing Deflectors

The Kleensall dust cloth and Win-Wings, wind deflectors for both open and closed cars, are two new products of the Reliance Specialty Company, Inc., Holyoke, Mass.

The dust cloth measures 27x15 inches and is specially treated. It is for use in cleaning windshields and automobile finishes. It is priced at 50 cents.

The wind deflectors are made of shatter-proof glass and are attached by means of brass brackets, chrome plated. The angle of the glass is adjustable. The price for open cars is $10 per pair; $14 for closed cars.

Equipment - - - Development

Malleable Iron

(Continued from Page 8)

of the close agreement between the averages for tensile strength, yield point and elongation in the two sets of data.

Table 2—Analysis of 5,000 Tension Tests of Malleable Iron Bars

TENSILE STRENGTH		
Range of Values, Lb. per Sq. In.	Number of Specimens	Percentage of Total
Under 45,000	0	0
45,000 to 45,499	0	0
45,500 to 45,999	1	0.02
46,000 to 46,499	1	0.02
46,500 to 46,999	1	0.02
47,000 to 47,499	0	0
47,500 to 47,999	3	0.06
48,000 to 48,499	3	0.06
48,500 to 48,999	5	0.10
49,000 to 49,499	7	0.14
49,500 to 49,999	16	0.32
50,000 to 50,499	106	2.12
50,500 to 50,999	183	3.66
51,000 to 51,499	212	4.24
51,500 to 51,999	260	5.20
52,000 to 52,499	341	6.82
52,500 to 52,999	398	7.96
53,000 to 53,499	442	8.84
53,500 to 53,999	485	9.70
54,000 to 54,499	503	10.06
54,500 to 54,999	464	9.28
55,000 to 55,499	423	8.46
55,500 to 55,999	335	6.70
56,000 to 56,499	261	5.22
56,500 to 56,999	220	4.40
57,000 to 57,499	159	3.18
57,500 to 57,999	71	1.42
58,000 to 58,499	40	0.80
58,500 to 58,999	32	0.64
59,000 to 59,499	10	0.20
59,500 to 59,999	9	0.18
60,000 to 60,500	8	0.16
Over 60,500	1	0.02
	5,000	100.00

YIELD POINT		
Range of Values, Lb. per Sq. In.	Number of Specimens	Percentage of Total
Under 33,000	0	0
33,000 to 33,999	2	0.04
34,000 to 34,999	134	2.68
35,000 to 35,999	1,243	24.86
36,000 to 36,999	2,100	42.00
37,000 to 37,999	1,090	21.80
38,000 to 38,999	352	7.04
39,000 to 40,000	68	1.36
Over 40,000	11	0.22
	5,000	100.00

ELONGATION IN 2 INCHES		
Range of Values, Per Cent.	Number of Specimens	Percentage of Total
Under 10	46	0.92
10.0 to 12.4	290	5.80
12.5 to 14.9	483	9.66
15.0 to 17.4	995	19.90
17.5 to 19.9	978	19.56
20.0 to 22.4	939	18.78
22.5 to 24.9	763	15.26
25.0 to 27.4	326	6.52
27.5 to 30.0	171	3.42
Over 30	9	0.18
	5,000	100.00

Reduction of Area:

This constant is infrequently determined and values on the usual "as cast" specimens are not especially useful. Machined specimens permitting accurate determinations are not usually prepared. Malleable iron stretches throughout the length of the specimen with little local "necking." On standard specimens ground cylindrical before annealing, values for reduction of area of 18 to 23 per cent. may be regarded as representative of material of standard quality.

Modulus of Elasticity in Tension; Stress-Strain Curves—The modulus of elasticity of malleable iron in tension is about 25,000,000 pounds per square inch. The determination of this modulus involves accurate measurement of load and elongation. Measurement of the latter is complicated by residual strains that may be present in the cast test bars, and for reliable determinations carefully straightened specimens should be used. Stress-strain curves obtained by the United States Bureau of Standards upon straightened specimens are shown in Fig. 8. Elongations were measured with a Ewing extensometer, which averages the deformations on diametrically opposite sides of the specimen. These curves indicate a value of the modulus of elasticity closely approximating 25,000,000 pounds per square inch.

This value agrees well with the average of the following values reported by six investigators:

	Modulus of Elasticity, Pounds per Square Inch
No. 1	25,000,000
No. 2	27,900,000
No. 3	24,000,000
No. 4	25,000,000
No. 5	24,500,000
No. 6	24,000,000
Average value	25,070,000

Compressive Strength; Transverse Strength—Because of its ductile character, malleable iron seldom or never actually fails under either compression or transverse loading.

In compression the material flows indefinitely, and in cross-bending it deforms to an extent rendering the part useless in service before fracturing.

Careful work on a limited number of specimens has confirmed the plausible supposition that the modulus of elasticity in compression is very near that in tension; for purposes of design from the deflection viewpoint a value of 25,000,000 pound per square inch for this constant may be used. In compression the material takes a permanent set of 1 per cent. at about 28,000 pounds per square inch.

For actual failure in cross-bending, an apparent maximum fiber stress of the order of magnitude of twice the tensile strength is required.

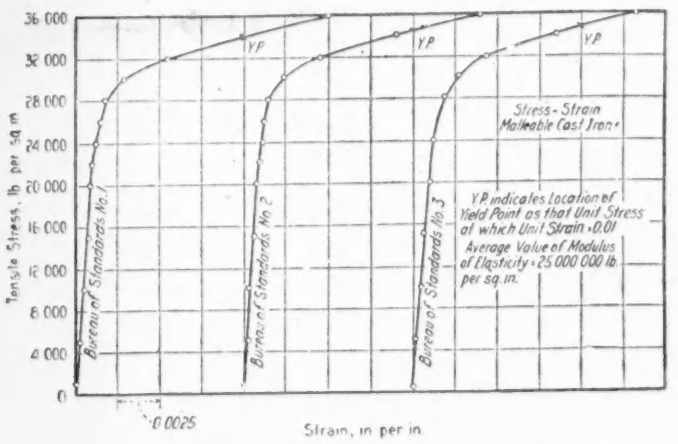


FIG. 2—Stress strain curves for malleable iron in tension

Shearing Strength:

In direct shear, malleable iron has an ultimate strength of about 48,000 pounds per square inch (approximately nine-tenths of the tensile strength) and a yield point of about 23,000 pounds per square inch. Values reported by four investigators are tabulated below:

Shearing Strength of Malleable Iron

	Ultimate Shearing Strength, Pounds per square inch Max.	Min.	Average	Yield Point in Shear, Pounds per square inch Max.	Min.	Average	No. of Tests
No. 1	.....	.....	9-10 tens. str.*	.....	.....	.....	25
No. 2	51,400	47,400	49,780	25,200	19,400	23,050	10
No. 3	48,000	40,000	45,000	25,000	20,000	23,000	5
No. 4	52,200	50,100	51,500	24,950	23,050	23,900	5
Average shearing strength			48,760	Av. yield point		23,300	

*Not included in average.

The shearing modulus of elasticity ranges from 10,000,000 to 15,000,000 pounds per square inch; 12,500,000 is a good average value.

Torsional Strength

Torsion tests of malleable iron are seldom made. From results reported by two investigators, tabulated below, the value of modulus of rupture in torsion may be taken as about 58,000 pounds per square inch, and the yield point as about 24,000 pounds per square inch.

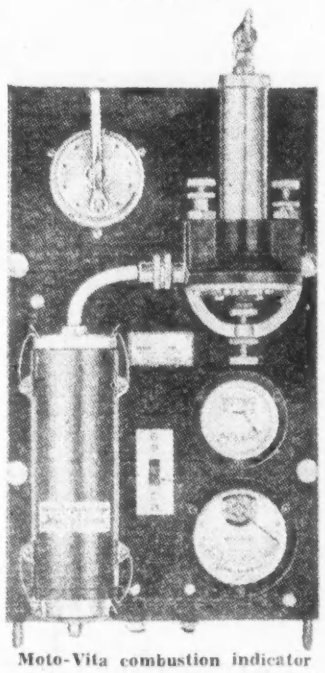
Torsional Strength of Malleable Iron

	Modulus of Rupture in Torsion, Pounds per square inch Max.	Min.	Average	Yield Point in Torsion, Pounds per square inch Max.	Min.	Average	Total No. av. twist of degrees tests
No. 1*	.....	.....	58,000	.....	.....	23,000	360‡ 2
No. 2†	59,940	56,380	58,040	27,040	26,250	26,760	796§ 3
Average modulus of rupture			58,000	Av. yield point		24,850	

*Test specimen: Bar .9 inch in diameter, 5-inch gauge length. Average tensile strength of same material, 51,000 pounds per square inch. †Test specimen: Bar 1 inch in diameter, 10-inch gauge length. ‡Twist over 5-inch gauge length. §Twist over 10-inch gauge length.

(To be continued)

MOTO VITA COMBUSTION INDICATOR NOW ON MARKET



Moto-Vita combustion indicator

Moto Vita, a device which indicates the combustibles in the exhaust gas of internal combustion engines, has been introduced by Moto-Meter Gauge and Equipment Corporation, Toledo, O.

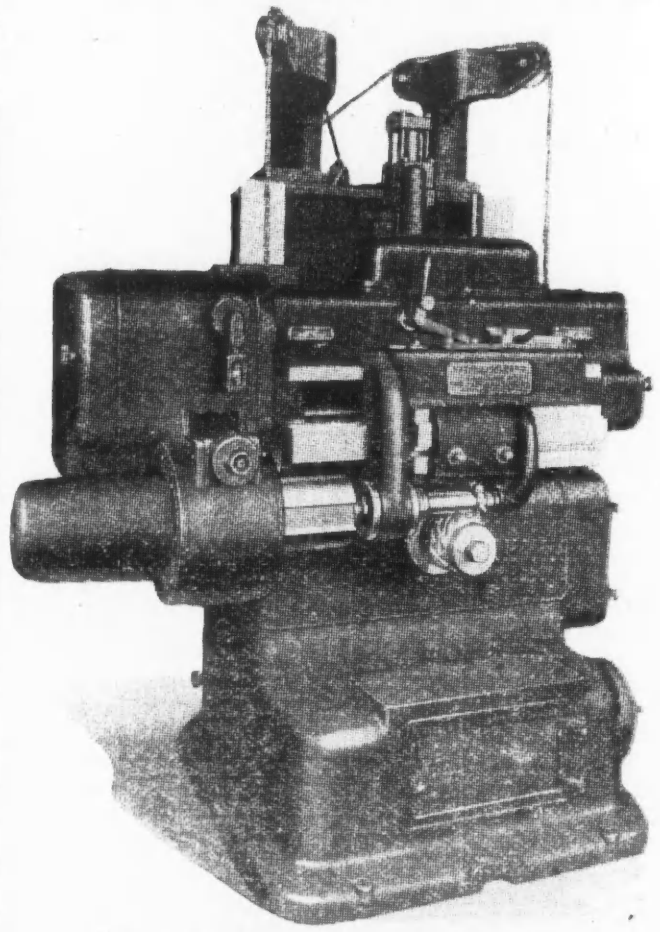
It is claimed to give an accurate and instantaneous analysis of the products of combustion and can be used continuously or intermittently as desired. It is also claimed to be sufficiently quick and accurate to give an indication of the variations between explosions in the same cylinder.

A treatise on the use of the instrument has been prepared by the manufacturer.

QUALITY SHOCKPROOF SCREWDRIVER

A shockproof screwdriver, with a viscoloid handle, is manufactured by Quality Tools Corporation, New Wilmington, Del. The blade is made of alloy steel. A set of ten screwdrivers, mounted on a board, is priced at $11.95. These tools, with blades from three inches to sixteen inches, are also priced separately.

New National Machine Generates Worm Wheels



NATIONAL WORM WHEEL generating machine

A new machine for generating worm wheels is announced by the National Tool Company, Cleveland, O. It is fully automatic when once set.

The machine is loaded and unloaded manually, but automatically stops after the cutter has returned to its original position preparatory to cutting a new worm wheel. The machine is started by a button switch. All shafts and spindles are made of chrome-nickel steel, mounted on ball bearings, which have been loaded to an initial stress greater than they will receive in use it is claimed. They will be available in 12, 24, 48 and 96-inch sizes.

RELIANCE NON-CORROSIVE BATTERY TERMINAL; A NEW PRODUCT

The Reliance, non-corrosive low resistance battery cable is a new product of the Reliance Battery Products Company, Council Bluffs, Ia., and Plano, Ill. An assortment containing forty-two of these cables mounted on a display board for prominent makes of cars is offered at $14.94.

RAYBESTOS-MANHATTAN NET PROFITS INCREASE

Bridgeport, Conn., July 8.—Net profits of Raybestos-Manhattan, Inc., for April and May equaled the total for the entire first quarter, when $241,203 was earned, a recent report discloses. Net profit in May, after all charges had been deducted, was $145,563. In April the net was $96,009. For the first five months of the year net income totaled $482,775. It is anticipated that earnings for the second quarter will reach approximately $350,000, or 50 cents a share on the 676,012 shares of stock outstanding.

ANNOUNCES NAME CHANGE

Los Angeles, July 8.—Wynns Tire and Rubber Company, Firestone distributor, with headquarters at 800 East 8th St., has changed the name of the firm to Firestone Service Stores, Inc., according to C. A. Turney, president. This change in name is to more closely identify the product distributed with the firm.

Cumulative New Commercial Car Registration Statistics, June, 1931

States	Autocar	Brockway-Indiana	Chevrolet	Diamond-T	Dodge	Federal	Ford	G. M. C.	International	La France-Republic	Mack	Reo	Sterling	Stewart	Studebaker	Whippet	White	Willys	Willys-Knight	Miscellaneous	Totals	States
Illinois	8	3	350	29	51	2	421	12	98		8	6	1	3	15			18		31	1056	Illinois
Illinois, 1930	1		442	58	45	4	590	28	110		9	18	2	1		6	8	5	2	56	1385	Illinois, 1930

WEEKLY BUSINESS INDICATORS

SURVEY OF CURRENT BUSINESS

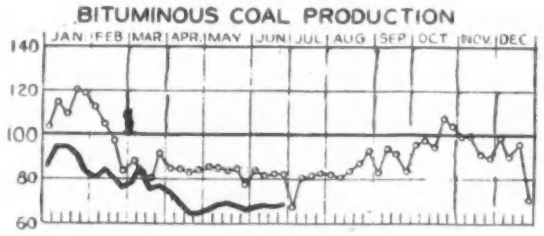
UNITED STATES DEPARTMENT OF COMMERCE

DATA PLOTTED, WHERE AVAILABLE FOR WEEK ENDING JULY 4, 1931

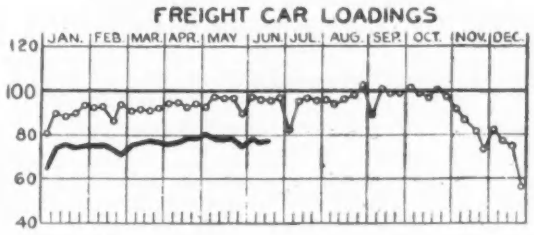
WEEKLY AVERAGE, 1923-1925, INCLUSIVE=100

LEGEND
1930
1931

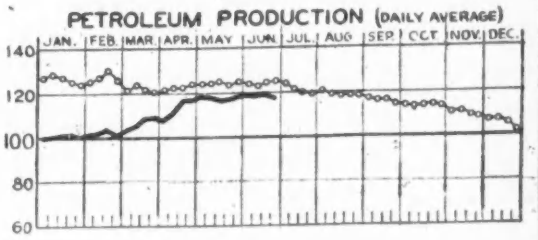
BITUMINOUS COAL PRODUCTION



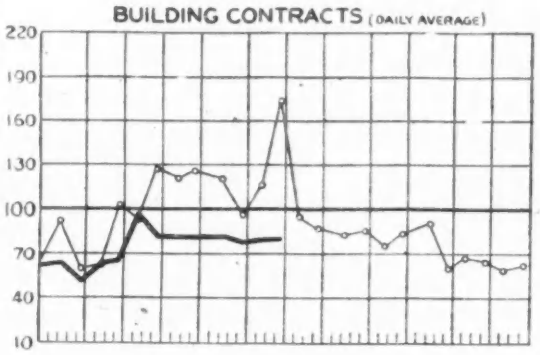
FREIGHT CAR LOADINGS



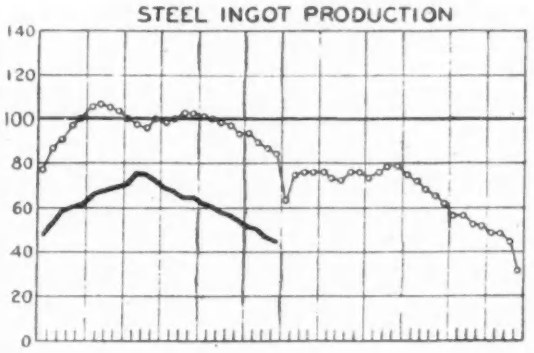
PETROLEUM PRODUCTION (DAILY AVERAGE)



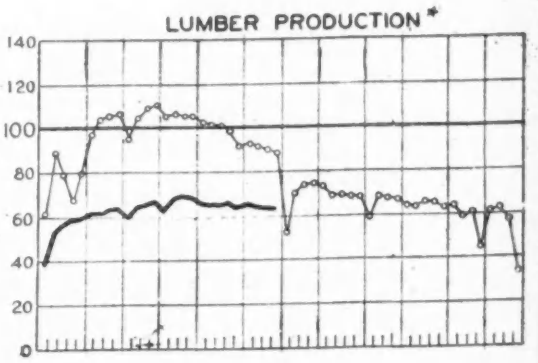
BUILDING CONTRACTS (DAILY AVERAGE)



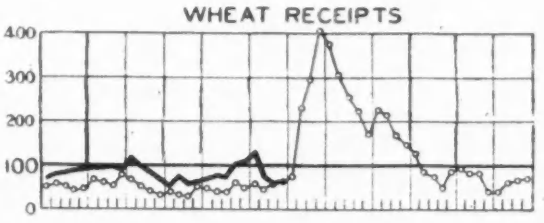
STEEL INGOT PRODUCTION



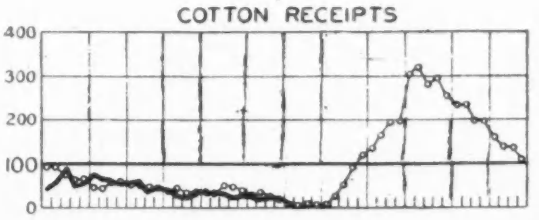
LUMBER PRODUCTION *



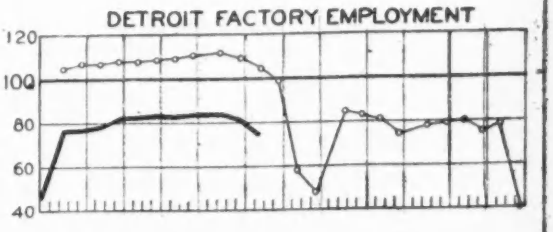
WHEAT RECEIPTS



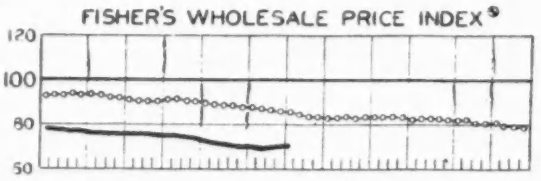
COTTON RECEIPTS



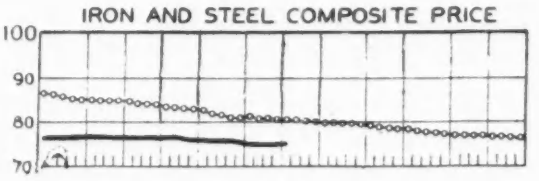
DETROIT FACTORY EMPLOYMENT



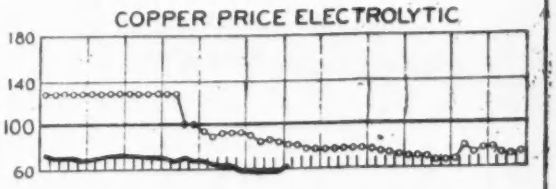
FISHER'S WHOLESALE PRICE INDEX ®



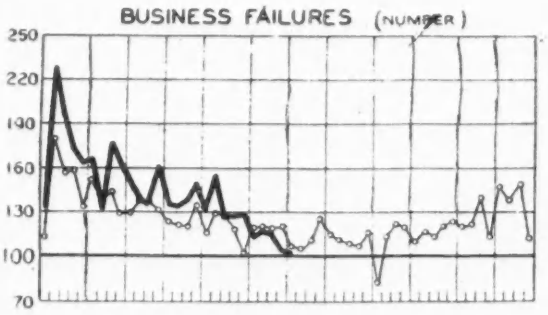
IRON AND STEEL COMPOSITE PRICE



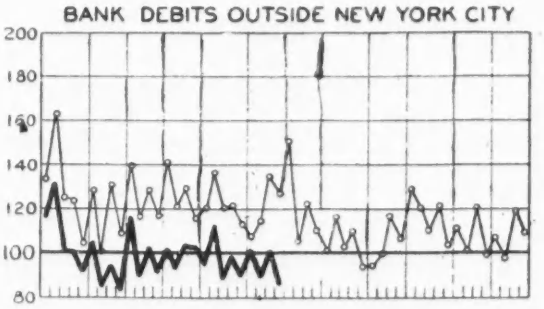
COPPER PRICE ELECTROLYTIC



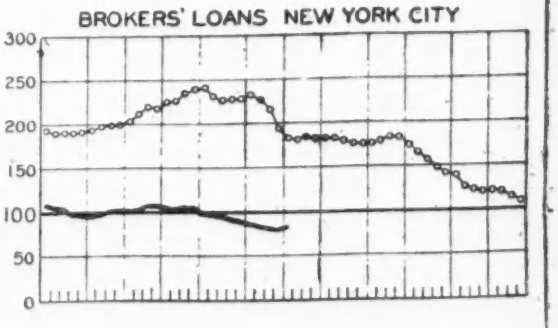
BUSINESS FAILURES (NUMBER)



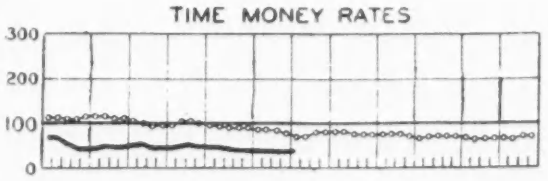
BANK DEBITS OUTSIDE NEW YORK CITY



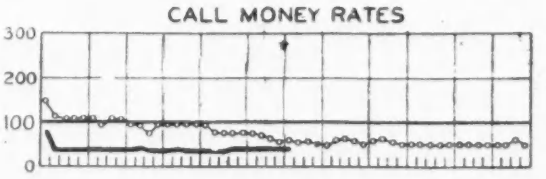
BROKERS' LOANS NEW YORK CITY



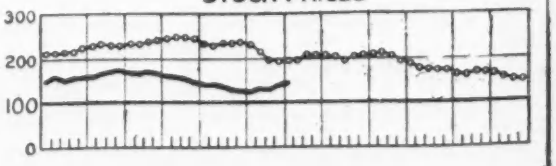
TIME MONEY RATES



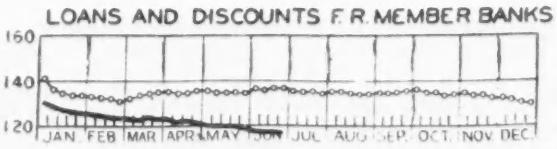
CALL MONEY RATES



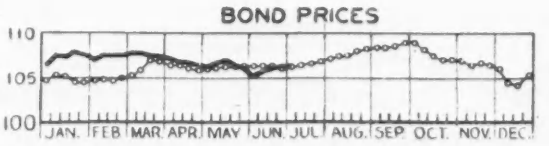
STOCK PRICES



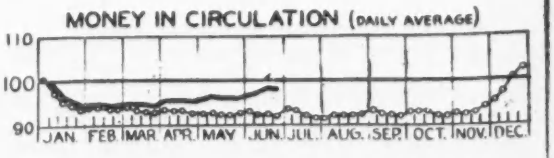
LOANS AND DISCOUNTS F.R. MEMBER BANKS



BOND PRICES



MONEY IN CIRCULATION (DAILY AVERAGE)



* RELATION TO WEEKLY AVERAGES 1928-1930 PER WEEK SHOWN.

® RELATIVE TO 1926=100

PNEUMATIC TIRES FOR BUSES BEING DEMANDED

Deal, N. J., July 8.—Mayor Aaron J. Bach of Deal today announced that he had given the Coast Cities Railway Company permission to continue the operation of buses along Ocean Avenue, Deal, for the remainder of the summer. Next summer, however, the mayor pointed out, before permission is given, the transportation company will have to put pneumatic tires on its cars. Commissioners recently requested that pneumatic tires be used immediately, but after a conference with company officials it was decided to allow the use of the solid tires the rest of the season.

RAY TENNES MOTOR CO. APPOINTS W. M. SCANLAN

Chicago, July 8.—W. M. Scanlan, prominently identified with Ford retail sales activities here for the past ten years, has just been appointed sales manager of the Ray Tennes Motor Company, large Ford dealer in the Logan Square district, at 2451 North Sacramento Ave.

RAY HUENE APPOINTED

Chicago, July 8.—Announcement is just made of the appointment of Ray Huene as general manager of the J. J. Wright Motor Company, south side Ford dealer at 242 West Garfield Boulevard. Mr. Huene has been identified with the sale of Ford products for the past eighteen years.

JACK PLUNKETT TRANSFERRED

Los Angeles, July 8.—Jack Plunkett, formerly assistant manager of the Goodyear Tire and Rubber Company's branch at Dallas, Tex., has been transferred to the Los Angeles branch, where he will hold a similar position under C. H. Williams, branch manager.

SPARKS from DETROIT

(Continued from Page 2)

off 3,000,000. He can account for 350,000—they were junked by the manufacturers. But what became of the other 2,500,000? Undoubtedly a goodly number were knocked on the head by the dealers and abandoned by the wayside, leaving at least a couple of millions unaccounted for. Where are they? Possibly stored in garages, while the owners are waiting for the depression to wind up.

* * *

REVENUES for the state of Michigan from gasoline taxation were lower during the fiscal year than in the year preceding, dropping from $24,106,130 to $23,789,170. The automobile weight tax receipts fell from $22,041,172 to $20,190,447. At that, though, approximately $44,000,000 is a fairly good rental for motorists to pay for the use of the highways of the commonwealth.

BOSTON PIERCE-ARROW REPORTS RECORD JUNE

Boston, Mass., July 8.—James C. Crosby, vice-president of the Pierce-Arrow Sales Company of Boston, says that the past month was the most successful June in the company's experience, with a gain of 25 per cent. in sales over the same month last year.

WILLIAM J. SPROAT

Memphis, Tenn., July 8.—William J. Sproat, 45, residing at 2370 Linden Circle Ave., lumber yard superintendent for the Fisher Body Corporation, died at the Baptist Hospital, where he had been ill two weeks. He was a native of Oscova, Mich., and came to Memphis six years ago.

W. F. GROOM MOTOR CORP. NEW HUDSON-ESSEX DISTRIBUTORSHIP

Buffalo, July 8. — The W. F. Groom Motor Corporation today became Hudson-Essex distributor in western New York. For eleven years the company has handled Oakland and Pontiac, building up to one of the largest retail organizations in Buffalo. W. F. Groom came to Buffalo in 1920 from Detroit where he had been connected with the Oakland organization.

The Hudson-Oliver Motor Company, which has distributed Hudson-Essex here for fifteen years, will go out of existence soon. It is rapidly liquidating its stocks and will have only to dispose of leases on the buildings which it has occupied.

E. G. (Ned) Oliver is a veteran of the business. He has been in business in Buffalo for many years and was a colleague of Eddie Bald, Verne Law, Tom Botterill and other old timers who came into the business when it was young. He voluntarily retired from the business, signifying his intention early in May. He has bought a palatial residence near Baltimore and moved his family there several months ago.

The W. F. Groom Motor Corporation operates in nine counties in western New York and four counties in northwestern Pennsylvania. This is a larger territory than was handled by Hudson-Oliver in recent years. All of the dealers operating under the former distributor have signed contracts with the W. F. Groom Motor Corporation. Practically no change will be made in the personnel, although the sales organization will be enlarged. It will continue in the large building at Main and Bryant.

LIBBY-OWENS STATES NOTE SUBSCRIPTION RATE

New York, July 8.—The Libbey-Owens-Ford Glass Company has notified the New York Stock Exchange that stockholders of record July 9 may subscribe to its new notes of the 5 per cent. convertible series at $2.35 par value of notes for each share of stock held. Rights expire July 29. It is understood that General Motors Corporation has agreed to take $3,500,000, and a complete subscription of the balance is assured.

Associated Apparel Industries, Inc., will offer stockholders of record July 16 the right to subscribe to new stock on a share for share basis at $10. The rights will expire August 6.

ERO MFG. LEASES CHICAGO BUILDING

Chicago, July 8.—The Ero Manufacturing Company, maker of automotive equipment specialties, has rented a seven-story and basement building at 714-18 West Monroe St. for a term of years at an undisclosed annual rental. Aproximately 110,000 square feet of floor space was taken.

It is expected that by August 1 the company will have moved from its present quarters in the old four-story building at 2234-40 Ogden Ave. The new factory is to be remodeled to meet manufacturing requirements and new and modern equipment will be installed.

MINNESOTA M. T. A. TO MEET JULY 14

St. Paul, Minn., July 8 (UTPS).—The Minnesota Motor Trades Association will have a meeting at 7 p.m. July 14 in the Hotel Lowry, under auspices of the Automobile Dealers' Association. Similar meetings are to be held July 13 in Mankato and July 15 in Duluth, Minn., and July 17 in Fargo, N. D. James Dalton of New York and Mike Holm, secretary of state in Minnesota, are to speak.

CURRENT PRICES OF PASSENGER CAR MODELS

AUBURN—8-98, 127 W. B.
Standard Models

2-dr. Brougham	945	Con. Cabriolet	1,045
4-dr. Full Sedan	995	Con. Phae. Sed.	1,145
B Man's Coupe	995		

AUBURN—8-98 A. 127 W. B.
Custom Models

5 4-dr. Sedan	1,195	Cabriolet (R.S.)	1,245
B. Man's Coupe	1,195	5 Con. Pha. Sed.	1,345
5 2-dr. Brough.	1,145		

AUSTIN—4 cyl. 75 W. B.

Business Coupe	330	De Luxe Coupe	525
Standard Coupe	395	2 Cabriolet	550
Runabout	395		

BUICK—8-50, 114 W. B.

2 Bus. Coupe	1,025	5 Phaeton	1,055
5 2-dr Sedan	1,035	4 Spt Coupe	1,095
4 Spt. Roadster	1,055	5 4-dr Sedan	1,095
		4 Conv. Coupe	1,095

BUICK—8-60, 118 W. B.

2 Bus. Coupe	1,285	5 Phaeton	1,335
4 Spt. Coupe	1,325	Spt Roadster	1,325
		5 4-dr. Sedan	1,355

BUICK—8-80, 124 W. B.

4-Coupe	1,535	5 4-dr. Sedan	1,565

BUICK—8-90, 132 W. B.

4 Spt. Roadster	1,610	5 4-dr. Sedan	1,785
7 Touring	1,620	4 Conv. Coupe	1,785
2 Spt. Coupe	1,720	7 4-dr. Sedan	1,935
5 Coupe	1,765	7 Lim. Sedan	2,035

CADILLAC—V-8. Fisher Custom. 134 W B.

2 Coupe	2,695	2 Con. Coupe	2,945
5 Coupe	2,795	7 Sedan	2,945
5 Sedan	2,795	5 A. W. Phaeton	3,795
5 Town Sedan	2,845	7 Imp. Sedan	3,095
2 Roadster	2,845	7 Touring (Fleet-wood)	3,195
5 Phaeton	2,945		

CADILLAC—V-12. 140 W. B.

2 Coupe	3,795	7 Sedan (143 W. B.)	4,195
5 Coupe	3,895		
5 Sedan	3,895	7 Touring	4,295
Roadster	3,945	7 Imperial Sedan (143 W. B.)	4,345
5 Town Sedan	3,945		
Phaeton	4,045	A. W. Phaeton	4,895
Con. Coupe	4,045		

CADILLAC—V-16. 148 W. B.
Fleetwood Custom.

2 Roadster	5,350	2 Coupe	6,850
A. W. Phaeton	5,750	2 Con. Coupe	6,900
2 Coupe	5,800	5 Club Sedan	6,950
5 Coupe	5,950	5 Sedan	6,950
5 Club Sedan	5,950	5 Sedan Cabrio.	7,125
5 Sedan	5,950	7 Sedan	7,225
5 Sedan Cabrio.	6,125	5 Imperial	7,300
7 Sedan	6,225	5 Imp. Cabriolet	7,350
5 Imperial	6,300	7 Imp. Sedan	7,525
5 Imp. Cabrio.	6,350	Town Cabriolet (Opera seats)	8,750
5 Phaeton	6,500	Town Cabriolet (quarter windows)	8,750
7 Imp. Sedan	6,525	Town Cabriolet (leather quarters)	8,750
Town Cabriolet (opera seats)	6,525	Lim. Brougham	8,750
Town Cabriolet, (quarter win.)	6,525	Town Brougham	9,200
Town Cabriolet, (full leather)	6,525	Town Brougham	9,700
Lim. Brough'm	6,525		

CHEVROLET—6-Cyl. 109 W. B.

2 Roadster	475	2-4 Sport Coupe (5 windows)	575
2-4 Sp. Roadster	495		
5 Phaeton	510	5 Coupe	595
2 Coupe (3 win.)	535	5 Sedan	635
2 Coupe (5 win.)	545	5 Special Sedan	650
5 Coach	545	Con. Cabriolet	615
		Lan. Phaeton	650

CHRYSLER—"6." 6-cyl. *175⅞ O. A.

2 Business Coupe (5 wire wheels)	865	5 Sedan	895
		5 Phaeton	915
2-4 Coupe (RS) (5 wire wheels)	885	2-4 Con. Coupe (RS)	935
2-4 Coupe (RS) (4 wood wheels)	885		

CHRYSLER—8-cyl. *186½ O. A.

2-4 Roadster	1,595	5 Royal Sedan	
2-4 Royal Coupe (Standard)	1,495	(Special)	1,565
5 Royal Sedan (Standard)	1,525	2-4 Sport Roadster (6 wire wheels)	1,595
2-4 Royal Coupe (Special)	1,535	2-4 Con. Coupe. 5 Phaeton	1,970

CHRYSLER—8 cyl. *187⅞ O. A.
De Luxe Models

2 Coupe (R.S.)	1525	4 Con. Coupe	
4 Roadster (RS)	1545	(R. S.)	1585
5 4-dr. Sedan	1565	5 Phaeton	1970

CHRYSLER—Imperial. 8-cyl. 211 O. A.

5 Sedan	2,745	7 Sedan Lim.	3,145
5 Sedan (Cl.C.)	2,845	2-4 Cus. Coupe.	3,150
7 Sedan	2,945		

CORD—8-cyl. 137½ W. B.

Sedan	2,395	Cabriolet	2,495
Brougham	2,395	Phaeton Sedan	2,595

DE SOTO—Six. *169⅞ O. A.

5-2 dr. Sedan	695	5 Touring	795
2 Stand. Coupe	740	2-4 Roadster	795
2-4 Coupe (RS)	775	2-4 Con. Coupe (R. S.)	825
5-4-dr. Sedan	775	5 De L. Sedan	825

DE SOTO—8-cyl. *177 O. A.

2 Business Coupe	965	5 Touring	1,035
2-4 Road. (RS)	995	5 De L. Sedan	1,065
2-4 De L. Coupe (RS)	995	2-4 Con. Coupe (RS)	1,075
5 4-Dr. Sedan	995		

Above listing can also be had in De Luxe models at same price.

DE VAUX—6 cyl. 113 W. B.

Phaeton	595	Standard Sedan (4 wood wheels, spare rim)	695
Standard Coupe (4 wood wheels spare rim)	625	Special Sedan (5 wire wheels, spare mounted in rear)	705
Business Coupe (5 wire wheels, one in right fender well)	645	Custom Coupe	795
Sport Coupe	675	Custom Sedan	795

DODGE—6-cyl. 114½ W. B.

2 Coupe (5 wire wheels, R. M.)	815	2-4 Coupe (R. S.) (5 wire wheels, 1 F. W.)	850
2 Coupe (4 wood wheels)	815	2 Coupe (5 wire wheels, 2 F. W.)	850
2 Coupe (5 wire wheels, 1 F.W.)	830	5 Sedan (5 wire wheels, 1 F. W.)	860
2-4 Coupe (R. S.) (5 wire wheels, R. M.)	835	5 Sedan (4 wood wheels, 1 F. W.)	860
2-4 Coupe (R. S.) (4 wood wheels, R. M.)	835	5 Phaeton (4 wood wheels)	865
5 Sedan (5 wire wheels, R. M.)	845	2-4 Coupe (6 wire wheels, 2 F. W.) (R.S.)	870
5 Sedan (4 wood wheels, R. M.)	845	5 Sedan (4 wood wheels, 2 F. W.)	875
		5 Sedan (6 wire wheels, 2. F. W.)	880

DODGE— 8-cyl. 118¼ W. B.

2-4 Coupe (R. S.) (5 wire wheels, R. M.)	1,095	5 Sedan (4 wood wheels, R. M.)	1,135
2 Coupe (5 wire wheels, R. M.)	1,095	5 Sedan (5 wire wheels, 1 F. W.)	1,150
2-4 Coupe (4 wood wheels)	1095	5 Sedan (5 wood wheels, 2 F. W.)	1,165
2-4 Coupe (6 wire wheels, 2 F. W.)	1,130	5 Sedan (6 wire wheels, 2 F. W.)	1,170
5 Sedan 5 wire wheels, (R.M.)	1,135		

DURANT—619 6-cyl. 109 W. B.

5 4-dr. Sedan	695		

DURANT—610 4-cyl. 112 W. B.

Business Coupe (wood wheels)	735	Coupe (R. S.) (wire wheels)	770
Business Coupe (wire wheels)	750	Sedan (wood wheels)	765
Coupe (R. S.) (wood wheels)	755	Sedan (wire wheels)	780

DURANT—617 6 cyl. 112 W. B.

Business Coupe (wood wheels)	760	Sedan (5 wire wheels	810
Business Coupe (wire wheels)	775	5 Spt. Coupe (R.S.) (6 wire wheels)	830
Coupe (R. S.) (wood wheels)	780	5 Sps. Road. (R.S.) (6 wire wheels)	845
Coupe (R. S.) (wire wheels)	795	Sedan 6 wire wheels)	845
Sedan (wood wheels)	795		

DURANT—614 6 cyl. 112 W. B.

De L. Coupe 6 dem. wood wheels)	965	De L. Sedan (6 dem. wood wheels)	995
De L. Coupe (6 dem. wire wheels)	965	De L. Sedan (6 dem. wire wheels)	995

ESSEX—6-cyl. 113 W. B.

2 Coupe	595	5 Town Sedan	735
5 Coach	595	5 Touring Sedan	775
4 Coupe (R.S.)	645	Spec. Sedan	855
5 Stand. Sedan	695	7 Sedan (119 w. b.)	895
4 Sport Roadster	725		

FORD—Model A. 4-cyl. 103½ W. B.

2 Roadster	430	5 De L. Phaeton	580
5 Phaeton	435	5 Standard Sedan (3 windows)	590
2 De L. Roadster	475		
5 Tudor Sedan	490	4 Cabriolet	595
2 Coupe	490	5-4-dr. De Luxe Sedan (2 win.)	630
4 Sport Coupe	500		
4 De L. Coupe	525	5 Town Sedan	630
4 Victoria	580	5 Con Sedan	640

FRANKLIN—Transcontinent. 6-cyl. 125 WB.

5 Sedan	2,295	Vic Brougham	2,395
Coupe	2,345	Pursuit	2,495
Con. Coupe	2,395	Town Sedan	2,425

FRANKLIN—Transcontinent. 6-cyl. 132 WB.

Roadster (6 wire wheels)	2,345	7 Sedan	2,475
		Sport Salon	2,595
5 Special Sedan	2,395	Spec. Limousine	2,725

FRANKLIN—De Luxe. 6-cyl. 132 W. B.

Coupe	2645	Speedster (5 wire wheels)	2,845
5 Sedan	2,695	7 Sedan	2,895
5 Pirate Tour	2,695	7 Pirate Phaet.	2,695
Con. Speedster	2,995	Club Sedan	2,745
7 Limousine	2,995	Con. Coupe	2,765
Town Berline (6 wire wheels)	4,195	Vic Brougham	2,795

GRAHAM—Prosperity. 6 cyl. 113 W. B.

Coupe	785	Sedan	825
Town Sedan	795	Coupe (R.S.)	825

GRAHAM—Standard. 6 cyl. 115 W. B.

Coupe	945	Coupe (R.S.)	985
Roadster (R.S.)	945	Sedan	995

GRAHAM—Special. 6 cyl. 115 W. B.

Coupe	985	Coupe (R.S.)	1025
Roadster (R.S.)	985	Sedan	1035
Town Sedan	1015		

GRAHAM—Special. 8 cyl. 120 W. B.

Coupe	1185	Sport Sedan	1275
Coupe (R.S.)	1225	Sedan	1285

Graham—Custom. 8 cyl. 134 W. B.

Sedan	1895	Limousine	2145
7 Sedan	1945		

HUDSON—8-cyl. 119 W. B.

2 Coupe	875	5 Town Sedan	945
5 Coach	895	5 Stand. Sedan	995
4 Coupe (RS)	925	Sport Roadster	995

HUDSON—8-cyl. 126 W. B.

5 Tour. Sedan	1,145	5 DeL Brougham	1,375
5 Brougham	1,195	5 Club Sedan	1,445
7 Fam. Sedan	1,195		

HUPMOBILE—Century 6. 114 W. B.

5 Sedan	995	Cabriolet (RS)	1,050
Com. Coupe	995	5 Phaeton	1,050
2 Coupe (R. S.)	995	Roadster (RS)	1,075

HUPMOBILE—Century 8. 118 W. B.

5 Sedan	1,295	2 Cabriolet (RS)	1,350
2 Coupe (RS)	1,295	5 Phaeton	1,350
2 Com. Coupe	1,295	2 Roadster (RS)	1,375

HUPMOBILE—Series C. 121 W. B.

5 Sedan	1,595	Victoria Coupe	1,615
2 Coupe (RS)	1,595	7 Spt. Phaeton	1,685
2 Cabriolet (RS)	1,595	5 Town Sedan	1,705
4 Coupe	1,615		

HUPMOBILE—Series H. 125 W. B.

5 Sedan	1,895	Victoria Coupe	1,915
2 Coupe (RS)	1,895	7 Spt. Phaeton	2,005
2 Cabriolet (RS)	1,895	5 Town Sedan	2,005
4 Coupe	1,915		

HUPMOBILE—Series U. 137 W. B.

7 Sedan	2,295	Sedan Limou	2,445
Victoria Coupe	2,295		

LA SALLE—8-cyl. 134 W. B.
Fisher Custom

2 Coupe	2,195	5 Town Sedan	2,345
5 Sedan	2,295	7 Sedan	2,475
2 Con. Coupe	2,295	7 Imp. Sedan	2,595
5 Coupe	2,295		

LA SALLE—8-cyl. 134 W. B.
Fleetwood Custom

2 Roadster	2,245	5 Sedanette	3,245
7 Touring	2,345	5 A. W. Phaeton	3,245
5 Sedan Cabrio.	3,245		

LINCOLN—8-cyl. 145 W. B.
Standard Models

4 Sport Phaeton	4,400	Town Sedan (3 windows)	4,600
7 Sport Touring	4,400	4 Sport Phaeton T.C.)	4,600
5 Coupe	4,600	4 Con. Roadster	4,700
5 Town Sedan (2 windows)	4,600	5 Sedan	4,700
		7 Sedan	4,900
		7 Limousine	5,100

LINCOLN—8 cyl. 145 W. B.
Custom Models

2 Coupe (Judkins)	5,200	Con. Sedan (Dietrich)	6,800
4 Berline (2 win.) (Judkins)	5,800	A. W. Cabriolet N.C.(LeBaron)	7,100
Berline (3 win.) (Judkins)	5,800	A. W. Brougham (Brunn)	7,200
Limousine (Willoughby)	6,100	A. W. Cabriolet S.C. (LeBaron)	7,300
Con. Phaeton (Derham)	6,200	A. W. Cabriolet (Brunn)	7,400
Con. Coupe (Dietrich)	6,400	Panel Brougham (Willoughby)	7,400

MARMON—70. 112¾ W. B.

2 Stand. Coupe	950	4 Vic. Coupe	995
5 Sedan	995	2 Con. Coupe	1,045

MARMON—88. 130-136 W. B.

5 Sedan	1,895	2 Con. Coupe	2,395
5 Sedan	2,220	7 Sedan	2,495
2 Stand. Coupe	2,275	7 Limousine	2,595
5 Club Sedan	2,345		

MARMON—16-cyl. 145 W. B.

5 Sedan	4,775	2 Con. Coupe	4,875
2 Coupe	4,795	7 Sedan	4,975
5 Cl. Cp. Sedan	4,845	5 Con. Sedan	4,995
5 Victoria	4,845	7 Limousine	5,075

NASH 960— 6-cyl. 114¼ W. B.

Coupe	795	4-dr. Sedan	845
2-dr. Sedan	795	Touring	895
Coupe (RS)	825		

(Recent price changes in bold face)

NASH—970. 8-cyl. 116¼ W. B.

Coupe	945	4-dr. Sedan	995
4-dr. Spec. Sedan	955	4 Con. Sedan	1,075
Coupe (RS)	975		

NASH—980. 8-cyl. 121 W. B.

Coupe	1,245	4 Con. Sedan	1,325
Coupe (RS)	1,285	4-dr. Town Sed.	1,375
4-dr. Sedan	1,295		

NASH—990. 8-cyl. 133 W. B.

4-dr. Sedan (124 W. B.)	1,565	Victoria	1,765
7 Touring	1,595	5 Sedan	1625
Cabriolet	1,695	7 Sedan	1,925
Coupe (RS)	1,745	7 Limousine	2,025

****OAKLAND—8-cyl. 117 W. B.**

Coupe	1,004	Con. Coupe	1,104
2-dr. Sedan	1,004	4-dr. Sedan	1,104
Sport Coupe	1,084	Custom Sedan	1,164

OLDSMOBILE—6-cyl. 113½ W. B.
Standard Models

2-dr. Sedan	845	4-dr. Sedan	925
Business Coupe	845	Con. Roadster	935
Sport Coupe	895	Patrician Sedan	960

OLDSMOBILE—6-cyl. 113½ W. B.
De Luxe Models

2-dr. Sedan	910	4-dr. Sedan	990
Business Coupe	910	Con. Roadster	1,000
Sport Coupe	960	Patrician Sedan	1,027

PACKARD—8-cyl. 129½ W. B.

5 Sedan	2,485		

PACKARD—8 cyl. 136½ W. B.

5 Phaeton	2,650	5 Coupe	2,795
2-4 Coupe Roadster	2,650	7 Sedan	2,885
2 Coupe	2,675	5 Spt Phaeton	2,950
5 Sedan	2,685	7 Sedan Limousine	2,985
7 Touring	2,775	5 Conv. Victoria	3,395
5 Club Sedan	2,775	5 Conv. sedan	3,445

PACKARD— 8-cyl. 142¼ W. B.

5 Phaeton	3,690	5 Coupe	3,850
2 Coupe	3,725	5 Club Sedan	3,890
2-4 Coupe Roadster	3,750	5 Coupe	3,890
7 Touring	3,795	5 Spts Phaeton	3,990
5 Sedan	3,845	5 Conv. Victoria	4,495
		5 Conv. sedan	4,550

PACKARD— 8-cyl. 147⅛ W. B.

7 Sedan	4,150	7 Sedan Lim.	4,285

PEERLESS—Standard 8. 118 W. B.

5 Sedan	1,495	5 Brougham	1,545
2 Coupe (RS)	1,495	2 Cabriolet R.S.	1,595
5 Club Sedan	1,545		

PEERLESS—Master 8. 125 W. B.

5 Sedan	1,995	5 Brougham	2,045
2 Coupe (RS)	1,995	2 Cabriolet	2,095
5 Club Sedan	2,045		

PEERLESS—8-cyl. 125 W. B.
De Luxe Master

5 Sedan	2,320	Brougham	2,370
2 Coupe	2,320	Cabriolet	2,420
Club Sedan	2,370		

PEERLESS—Custom 8. 188 W. B.

2 Coupe (RS)	2,795	5 Brougham	2,845
5 Sedan	2,795	7 Sedan	2,945
5 Club Sedan	2,845	7 Limousine	3,145

PIERCE-ARROW—43. 8-cyl. 134 W. B.

2-4 Coupe (RS)	2,685	2-4 Sport Roadster (RS)	2,895
5 Sport Tourer	2,895		

PIERCE-ARROW—43. 8-cyl. 137 W. B.

5 Sedan	2,685	7 En. Dr. Limou	3,145
5 Club Sedan	2,835	5 Con. Sedan	3,650
7 Sedan	2,995		

PIERCE-ARROW—42. 8-cyl. 142 W. B.

5 Tourer	3,450	4 Spt. Phaeton	3,750
2-4 Spt. Roadster (RS)	3,450	5 Club Sedan	3,745
2-4 Con. Coupe (RS)	3,650	7 Sedan	3,825
5 Sedan	3,695	5 Club Berline	3,945
		7 En. Dr. Limou	3,995

PIERCE-ARROW—41. 8 cyl. 147 W. B.

7 Spt. Tourer	4275	7 Sedan	4785
2-4 Con. Coupe (R.S.)	4275	7 En. Dr. Limou	4985

PIERCE-ARROW—41. 8 cyl. 147 W. B.
Le Baron Custom Group

2-4 Coupe (RS)	5100	Formal Town Brougham	6250
5 Coupe Victoria	5100		
5 Con. Sedan	5200	Formal Town Car	6250
5 Spt. Sedan	5375		
7 En. Dr. Lim.	5975	Formal Town Landaulet	6400

PLYMOUTH—4-cyl. 170 O. A.

2 Bus. Roadster	535	5 Phaeton	595
2 Bus. Coupe	565	2 Coupe (RS)	610
5 2-dr Sedan	575	4-dr Sedan	635
4 Roadster (R.S.)	595	4 Con Coupe	645

****PONTIAC—6 cyl. 112 W. B.**

2-dr Sedan	779	Con. Coupe	849
Coupe	779	4-dr. Sedan	849
Sport Coupe	819	Custom Sedan	889

REO—6-21. 6-cyl. 121 W. B.

5 Sedan	1295		

REO—8-21. 8-cyl. 121 W. B.

5 Sedan	1,395		

REO ROYALE—8 cyl. 131 W. B.

Sedan Victoria	2,145	Coupe	2,145

REO ROYALE—8 cyl. 135 W. B.

Sedan	2,745	Coupe	2,745
		Con. Coupe	2995

STUDEBAKER—Six. 114 W. B.

Roadster	895	Tourer	895
2 Bus. Coupe	845	Regal Tourer	970
5 4-dr. Sedan	895	5 Regal Sedan	
4 Coupe (RS)	895	(6 wire wheels)	970

STUDEBAKER—Commander 8-70. 124 W. B.

4 Coupe	1,585	5 Brougham	
5 Sedan	1,585	(Cloth)	1685
4 Victoria	1,585	5 Brougham (Mohair)	1685

STUDEBAKER—President 8-90. 136 W. B.

7 Tourer	1,850	State Victoria	2250
7-State Tourer	2050	7 State Sedan (Mohair)	2250
7 Sedan	2,150	7 State sedan (Cloth)	2250
5 Brougham (Mohair)	2,295	7-Limousine	2550
5 Brougham (Cloth)	2,295		

STUTZ—LA 6-cyl. 123½ W. B.

5 Coupe	1,995	Cab. Coupe	2,445
5 Sedan	2,245	2 Speedster	2,585
2 Coupe	2,245	4 Speedster	2,585
Club Sedan	2,345	4 Speedster (TC)	2,785

STUTZ—MA. 8-cyl. 134½ W. B.

5 Coupe	2,690	2 Speedster	3,495
2 Coupe	2,995	4 Speedster	3,495
5 Sedan	3,195	Tor. Speedster	3,595
Club Sedan	3,295	4 Speedster (TC)	3,795
Cab. Coupe	3,345		

STUTZ—MB. 8 cyl. Custom. 145 W. B.

7 Speedster	3,595	7 Limousine	3,995
5 Sedan	3,695	Cab. Coupe	3,995
7 Sedan	3,895	5 Con. Sedan	4,395

STUTZ—MB. 8-cyl. Salon. 145 W. B.

5 Sedan (Le Baron)	4,795	7 Sedan Limousine (Le Baron)	5,195
6 Brougham (Le Baron)	4,995	5 Trans. Cabriolet (Le Baron)	6,610
6 Sedan (Le Baron)	4,995	7 Trans. Town Car (Le Baron)	5,700
6 Bro. Limousine (Le Baron)	5,195	7 Trans. Town Car (Fleetwood)	7,495
6 Sed Limousine (Le Baron)	5,195		

STUTZ—MA. 8 cyl. 134½ W. B.
Chateau Series Weymann.

4 Longchamps	4,345	5 Versailles	4,845

STUTZ—MB. 8-cyl. 145 W. B.
Chateau Series Weymann.

5 Chaumont	4,745	5 Monte Carlo	4,895

WILLYS—6-97. 6-cyl. 110 W. B.

2 Roadster	495	5 Club Sedan	625
5 Touring	545	5 Sedan	675
2 Coupe	565	4 De L Spt.	
5 2-dr. Coach	595	Roadster	675
4 Coupe	595	De L. Touring	725

WILLYS—6-98-D. 6-cyl. 113 W. B.

5 Standard Sedan	795	5 Sedan (De L)	850
4 Vic. Coupe (DeL)	850		

WILLYS—8-80-D. 8-cyl. 121 W. B.

5 Sedan	995	4 Victoria Coupe	
5 Sedan (De L)	1,095	(De Luxe) Custom Sedan	1,095
			1,295

WILLYS KNIGHT—6-95. 113 W. B.

Coach	845	5 Sedan	875
2 Coupe	845	Victoria Coupe	
5 Win. Coach	875	(De L.)	895

WILLYS-KNIGHT—66-D. 6-cyl. 121 W. B.

5 Sedan	1,095	4 Victoria Coupe (De Luxe)	1,195
5 Sedan (DeL)	1,195	Custom Sedan	1

Capital Dealers Favor Title Law; Differ on Act

(Continued from Page 1)

Evans, of the Bureau of Efficiency, U. S., and R. J. Murphy, manager, Washington Automotive Trade Association.

"We met almost daily for about six weeks. We considered the title laws of nearby states and in the beginning it was decided that the title wolud commence with the dealer, on the same basis of procedure as is in effect in Pennsylvania and Maryland, namely, by the granting to the dealer a dealer's certificate of title on his sworn statement before a notary public that the motor vehicle in question is owned by him.

"Pennsylvania originally charged $2 for this dealer's title. In 1925 they reduced the price to $1 and in 1929 eliminated the charge entirely. Maryland has never made any charge for the dealer's title and originally there was no intention of making any charge for the District of Columbia. However, it was ascertained that the District of Columbia could not afford to issue these dealer's titles without a charge and the fee first mentioned was 50 cents and finally a fee of $1 was decided upon. Realizing that this would be a financial burden upon our dealers the writer, after conferring with the officers and directors of the Washington Automotive Trade Association, suggested that the District of Columbia consider the use of the manufacturers' certificate which was incorporated in the state of Ohio title law which had just been signed by the governor of that state.

"After due consideration it was decided that irrespective as to whether there would be a charge for dealer's title or not the procedure of the manufacturer's certificate, namely, having the title begin with the manufacturer and not with the dealer was far better for the automobile owner and incidentally a great deal less trouble for the dealer than to have the title begin with the dealer, and furthermore as a great number of new automobiles are purchased by dealers on the so-called floor plan the dealer could not start the title in this case for the reason that the automobiles purchased under this plan are not sold by the manufacturer to the dealer, but are sold by the manufacturer to the finance companies and consequently are not owned by the dealer.

"On or about June 25, R. B. English of the Ford Motor Company learned that the regulations as drawn contemplated the use of a manufacturer's certificate and of title commencing with the manufacturer. He immediately sent one of his assistants to call upon Mr. Van Duzer. Mr. Van Duzer told the Ford representative that his idea of the title beginning with the manufacturer was basically and fundamentally correct and that he could not consider changing it to the procedure now in effect in nearby states, namely, of the title beginning with the dealer.

"Mr. English succeeded in getting Mr. Cary, city sales manager of the Chevrolet Motor Company, Baltimore, Md., to his way of thinking and these two gentlemen appeared before Commissioner Crosby on June 29, 1931, at which time it was decided that these two men were in favor of a title law, but that they did not like the contemplated District of Columbia procedure, as it placed an additional burden of work on the manufacturer, and they thought that the District of Columbia could adopt the same procedure as Maryland and Pennsylvania, namely the issuing of titles to the dealer upon his sworn statement that he was the owner of the vehicle.

"It was decided at this meeting that the District of Columbia wanted the title to begin with the manufacturer and not with the dealer and then Messrs. English and Cary stated that they thought they could devise a simpler procedure covering this than that of the manufacturer's certificate and Commissioner Crosby gave them ten days in which to submit their ideas of it and no doubt this will take place on July 9, 1931.

"For your further information would say that the Washington Automotive Trade Association consists of thirty-six automobile dealers representing every make of new automobile sold in the District of Columbia and they have given to the plan as outlined by Mr. Van Duzer their unqualified approval and in view of this we believe that you should publish a news item to this effect in order that the automobile dealer members of the Washington Automobile Trade Association may be set in a right position before the automotive industry of the United States the great majority of which no doubt read your publication."

PACKARD STAGING HUGE DEMONSTRATION CAMPAIGN

Detroit, July 8.—One of the biggest demonstrating campaigns ever attempted by an automobile company is being conducted by the Packard Motor Car Company in all parts of the country with its new cars. In nearly every American city Packard distributers or dealers for the past two weeks have been seeking to give rides in the new Packard Eights to just as many people as possible.

PLANT OPERATION IN N. Y.-PA. SECTOR SHOWING GAINS

(Continued from Page 1)

the balance of the year. The firm will resume production the second week in July, following its annual shutdown over the Independence holiday for one week.

The metal furniture manufacturers here are busy on orders for interior metal trim for several automobile and body manufacturers, including the Dahlstrom Metallic Door Company, the Jamestown Metal Desk Company and the Jamestown Metal Products, Inc. Plans are in progress for building a substantial addition to the Allen Street plant of the Jamestown Metal Equipment Company, Inc., manufacturer of automobile radiators and interior metal trim. This concern recently acquired property in Tiffany Avenue, adjoining its present plant, for expansion purposes.

Production schedules are of close-to-capacity at the Two-Way Shock Absorber Company in Harrison Street, Jamestown. This firm has completed the installation of approximately $50,000 worth of new machinery and equipment in a one-story fireproof addition to its plant and is prepared for a wide increase in production during the coming months. Arthur W. Kettle, president of the Kettle Motor Sales Company, Inc., Buick-Oakland-Pontiac distributor, is also head of the Two-Way Company.

In Warren, Pa., plans are under way to resume manufacturing operations this month at the plant of the Warren Gear Products Corporation, which is reported to have received substantial contracts for gear products from the automotive industry. The Hammond Iron Works, Warren, Pa., is also operating on improved schedules.

Metal manufacturers and concerns engaged in the manufacture of material and equipment for the automotive industry in Erie, Pa., are in operation on schedules substantially greater than a year ago. The Erie Meter Systems, Inc., with plant in Wesleyville, Pa., booked the largest volume of business in its history during the first six months of the current year. Improved business is also reported by the Uniflow Pump Company, while the Erie plant of the General Electric Company is in operation on a close-to-capacity basis, with employment well above the 6,000-mark.

Representatives of the Ford Motor Company are negotiating with interests in Conneaut, O., just west of Erie, for acquisition of a large tract of land along the Lake Erie waterfront, on which, it is reported, a modern automobile manufacturing unit will be erected, to give employment to 3,000 men.

OPENS PAINT SHOP

Irvington, N. J., July 8.—Harrison Auto Painting Company has been organized by Julius Dobrosky, Louis Dobrosky and Mary Dobrosky, Irvington.

AUTOMOTIVE BUYING BOLSTERS MACHINERY TRADE; OTHERS QUIET

(Continued from Page 1)

ing of demand from automobile and accessory sources.

"Beyond this, conditions remain about as they were, with tools going slowly after much selling effort, inquiries lagging until they are practically forgotten, and used tools scarcely wanted, even after prices have been beaten down.

"Indianapolis is depressed, although—as everywhere else—the fall is expected to turn things up. Chrysler and Perfect Circle are buying there.

"New England also reports the stir from the automobile field and steady foreign demand for grinding machines and better-than-average government business."

PERFECT CIRCLE NAMES WEBBER ON COAST

Los Angeles, July 8.—A. H. Webber has been appointed district manager of the Perfect Circle Company, 331 Petroleum Securities Building. His district comprises California, Arizona, New Mexico, and El Paso, Tex.

JIM SMITH NEW MANAGER

Birmingham, Ala., July 8.—Firestone Service Stores, Inc., has just announced the appointment of Jim Smith as general manager.

Over 9,000 readers in automotive factories

Think of the influence of a newspaper read by an average of over 8 persons in the automotive plants that receive it. That is Automotive Daily News. This service is so valuable that copies are routed to various department heads and other executives.

Its news service, its engineering service, its registrations of passenger cars and trucks are speedier than that of any other publication.

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